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Seventh National Power Show Largest on Record

Various Types and Styles of Mechanism Demonstrated, From the Tiniest of Precision Instruments to Huge Machines, With Efficiency of Hundreds of Tons—More Than 551 Exhibitors Occupy an Area Approximately Equivalent of Four City Blocks—All Sorts of Generating and Transmitting Apparatus Shown—Safety Systems Viewed

The Seventh National Exposition of Power and Mechanical Engineering, which opened at the Grand Central Palace, New York, last Monday, comprises 551 exhibitors, with their displays spread out over an area approximately the equivalent of four city blocks. This is the largest exposition of the sort ever staged.

Last year's exposition drew 110,000 visitors throughout the week, and it is believed that the record will be considerably surpassed this season. Thousands of college and technical school students and instructors are attending, many of them in class groups. Experts from 33 foreign countries either have made the trip especially for the Show, or have timed their visits to this country in order to include it.

An attempt to enumerate the various types and styles of mechanism displayed would require considerable space. The tiniest precision instruments, some capable of measuring in terms of one one-thousandth of an inch and of demonstrating that an inch length of black human hair may be heavier than the same length of gray hair, are to be found right on the same floor with huge machines, the efficiency of which is measured in hundreds of tons.

All sorts of power-generating and transmitting apparatus, heating, ventilating and refrigerating machines and shop equipment, safety systems and many things vital to manufacturing, agriculture, mining, transportation and other basic industries are to be found in profusion. Some of the highly scientific processes exhibited and demonstrated are exceptionally interesting. There seems to be no end to what can be done with a lump of coal, such as pulverizing, liquefying, et cetera, to increase its fuel value, and also turning it into dyes, explosives, perfumes, fertilizer, and so on. Many of these things are discoveries made during the war and more recently perfected.

Considerable attention is given to a number of educational exhibits, including models and plans of the new Hudson River Bridge, now under construction; the Staten Island-New Jersey (Bayonne) Bridge, on which stress, strain and wind pressures may be measured by sensitive instruments; models of the proposed railroad freight terminal in New York; diagrams and models showing layouts of piping for power and heating plants, and a mechanical wonderland of models in motion of nearly every mechanical movement and device used, or proposed for use, in engineering. The New York State Department of Labor has a graphic demonstration of safety work in industrial plants, mines and factories. Motion pictures of industrial processes and progress supplement these.

Coincident with the Exposition numerous conventions of various engineering groups are being held. These include meetings of the American Society of Mechanical Engineers, the American Society of Refrigerating Engineers, the American Institute of Chemical Engineers and other organizations. The management of the Exposition is in the hands of a group of executives representing the more important engineering associations. I. E. Moultrop is chairman of the Advisory committee and F. W. Payne and Charles F. Roth, of the International Exposition Company, are co-managers of the Exposition.

Limitation of space prevents individual mention of all the exhibits, but the following is a record of some of those which are of particular interest to visitors of the paper industry:

Alexander Bros., Inc.

An interesting and attractive exhibit is shown by Alexander Bros., Inc., of 14 South street, Philadelphia, consisting of several pieces of equipment driven by their tentacular Transmission Belting. This type of transmission has proved to be highly efficient on such drives as fans, blowers, compressors, etc. There is also shown a motion picture which illustrates some of the drives on which Tentacular is now performing successfully.

Allen-Sherman-Hoff Co.

Two Scene-in-Action pictures are displayed by the Allen-Sherman-Hoff Company, of 225 South 15th street, Philadelphia, both showing the operation of the Hydrojet System. One shows the removal of ashes from the furnace, while the other shows the ashes being pumped from the sump to an overhead storage bin, where the water is drained by Type C gates.

The Hydrojet System has no moving parts, maintenance costs are low, and because it is totally enclosed the ash basement can be maintained comparatively clean, dry and well ventilated. Also, since the Hydrojet is operated only when ashes are to be removed, one man, part time of one shift, can easily handle the entire ash discharge.

R. H. Beaumont Co.

Improved roller bearing skip hoist winding machines and latest model drained pivoted ash gates are displayed by the R. H. Beaumont Company, of 319 Arch street, Philadelphia. A number of new photographs showing some of the latest installations are also shown.

Simplicity of design and operation mark the features of the coal handling installation of the Beaumont Company. Coal is discharged from cars into a track hopper; fed to the skip bucket by the Beaumont patented Simplex Loader. Coal is elevated, discharged to tram car which distributes the coal evenly and automatically into the suspension bunker. No attention is

necessary. The cycle is continued surely, efficiently and quietly until operator pushes the "stop" button.

The Blaw-Knox Co.

Blaw-Knox electro-forged steel grating and steps are displayed at the booth of the Blaw-Knox Company, of Pittsburgh, Pa. This interesting exhibit also includes a model of the Blaw-Knox Regenerative Air Preheater, models of Clam-shell buckets and miscellaneous presentations of other Blaw-Knox lines.

Blaw-Knox electro forged steel grating are developed from a practical engineering idea. Every point of its design has been scanned from the cold viewpoint of strength, safety, cost of maintenance, long life, appearance, light distribution, air infiltration and utmost usefulness.

The Bristol Co.

One of the most attractive exhibits at the Show is that of the Bristol Company, of Waterbury, Conn., which includes a complete line of Recording Instruments applicable for the Power Plant. Briefly summarizing: Recording Pressure and Vacuum Gauges; Recording Barometers; Recording Liquid Level Gauges for Tanks, Vats, etc.; also Indicating and Recording Liquid Level Gauges for Steam Boiler; Recording Thermometers; Recording and Indicating Pyrometers; Temperature Control Instruments and Control Valves; Electrical Recording Instruments including Voltmeters, Ammeters, Wattmeters, Frequency Meters; Mechanical Time Recorders and Operation recorders; The Bristol Long Distance Transmitting and Recording System is also ably demonstrated.

Brown Instrument Co.

The central feature of the exhibit of the Brown Instrument Company, of Philadelphia, is a demonstration of the Brown Electric Flow Meter and its inductance bridge principal. A large replica of the indicating flow meter is seen operating in unison with standard Brown indicating, recording and integrating instruments. On similar panels is also shown other Brown indicating and recording thermometers, pressure gauges, resistance thermometers, flue gas pyrometers and CO_2 meters.

Cleveland Worm & Gear Co.

Standardized Cleveland Worm Gear Speed Reduction Units and Cleveland Worm Gearing for industrial machinery and automotive vehicles are displayed by the Cleveland Worm and Gear Company, of Cleveland, Ohio. Since 1919 these drives have been continually improved to their present high quality of design and workmanship. In 1924 the demand for Cleveland industrial drives necessitated larger quarters and a new plant was built at the present address. It is claimed to be the only factory in the world arranged and equipped entirely for the production of high quality worm gearing. No other type of gearing is manufactured and Cleveland engineers devote their entire attention to this one product.

Cutler, Hammer Mfg. Co.

The Cutler-Hammer Manufacturing Company, of Milwaukee, Wis., occupy a large space on the main floor where they are exhibiting outstanding developments in motor control consisting of: Across-the-Line automatic starters, Motor Operated Valve Control; the new C-H Unbreakable Resistor, the bulletin 9586 "AAA" small size Across-the-Line Automatic Starters, New Development in Elevator Control and Accessories, Motor Control for large buildings; Control Apparatus for marine service, Electric Heating Units, Wiring Devices, etc.

Starting problems on the beater drive and other paper mill drives are eliminated by the use of Cutler-Hammer Magnetic Clutches. This organization has gained an enviable reputation as pioneer manufacturers of electric control apparatus.

Charles Engelhard, Inc.

Recording and indicating thermometers, automatic temperature control and electrical gas analysis apparatus are exhibited by Charles Engelhard, Inc., of Newark, N. J.

The Engelhard analyzers and recorders make possible important economies in the paper mill, where they have proved their usefulness indisputably.

The Farnsworth Co.

The Farnsworth Company, of Conshohocken, Pa., are showing special condensate pumping equipment; Paper Drying Systems; Oil and Steam Separators; Feed Water Heaters and various Heat Reclaiming Systems and methods.

The Farnsworth System guarantees to save more than the cost of the equipment in one year and in draining condensate from paper machines a Farnsworth Drainage Receiver and Pump handles enormous volumes of high temperature condensate.

Gears & Forgings, Inc.

Planetary Worm and Herrington Speed Reducers; all kinds and sizes of gears; Drop and Smith Hammered Forgings; and Van Dorn 2 Speed Axles, are displayed at the booth of Gears & Forgings, Inc., of Cleveland, Ohio.

Gears & Forgings, Inc., are also distributing Bulletin B, which illustrates the many advantages of their Planetary Speed Reducers as to economy, efficiency and adaptability.

General Electric Co.

The exhibit of the General Electric Company, of Schenectady, N. Y., includes a display of motors and industrial control, new switchgear system for controlling substations, new types of vacuum and similar tubes and samples of molded and laminated Textolite showing many of the varied applications for which these materials may be used.

A feature of the motor display is the improved single-phase motor recently announced by the General Electric Company. The motor display also includes a 7½ h.p., 3-phase motor with standard pulley and base and a 15 hp., 3-phase totally-enclosed fan-cooled motor with standard pulley and base. Some of the motors are in operation to demonstrate the method of cooling totally-enclosed types.

The industrial control exhibit includes a display panel equipment, operating a motor; a direct current time starter mounted on a motor and including a photo-electric tube, and a display panel equipment consisting of a magnetic switch controlling motor. In addition, there is shown an industrial control with sign flasher, and a display equipment showing the pull of a solenoid.

A new selector and supervisory equipment for remote control of substations features the switchgear display. New types of ocntrol switches and new types of air and oil circuit breakers.

The laboratory exhibit includes photo-electric tubes demonstrating the means whereby changes in light control a current. The streamer discharge and other interesting tubes showing the discharges in various gases are also shown. The new thyratron tube, which acts as a valve capable of controlling reasonably large quantities of power but which requires only a small amount of energy for operation, is also exhibited.

The Hardinge Co.

Working models of the Hardinge Conical Ball Mill Unit Coal Pulverizer, the Hardinge Clarifier and the Ruggles-Coles Dryer are ably demonstrated by the staff of the Hardinge Company, of New York. A Scene-in-Action picture illustrating the principle of operating of the Hardinge method of grinding and air separating is also shown.

The Hardinge Unit Pulverizer is a slow speed ball mill equipped with a method of air classification which controls the fineness at all ratings. Regulation is easy and instantaneous. One adjustment automatically controls the fuel to the burner, make-up air and feed to the mill.

Hartzell Propeller Co.

The Hartzell Propeller Company, of Piqua, Ohio, is exhibiting Charaway Airplane Propeller Fans and Blowers.

This interesting exhibit is wired so that the remarkable air moving qualities of these fans can be demonstrated.

Hendrick Mfg. Co.

Products shown at the booth of the Hendrick Manufacturing Company, of Carbondale, Pa., include Perforated Metal Screens, "Mitco" Interlocked Steel Grating, "Mitco" Shur-Site Stair Treads, Elevator Buckets, "Mitco" Interlocked Steel Grating, and Perforated Metal Screens.

Mitco gratings afford a rigid, well-designed, non-slipping floor. Its principal advantages are: Freedom from rattling, maximum lighting, maximum ventilation, non-clogging and rust resisting, ease of upkeep and repainting, permanent rigidity and long life.

Lockwood Trade Journal Co.

Publications of the Lockwood Trade Journal Company, of New York, are prominently displayed at the booth of that organization, including the PAPER TRADE JOURNAL, "Classifications and Definitions of Paper," "History of Paper Making in the United States," Chemistry of the Sulphite Process," "Paper Making Materials," "Paper Testing Methods," "Bibliography of Paper Making," etc.

Mason Regulator Co.

The Mason Regulator Company, of Dorchester Center, Boston, Mass., is showing a complete line of pressure reducing valves, damper regulator, pump governors and balanced valves. Featured as a specialty is a small bronze body single seated reducing valve, low in price and extremely high in quality.

The Mason Combination Reducing Valve is specially designed for the control of steam to digesters and paper machines. It provides a steady, accurate maintenance of exact pressure, saves steam and helps to produce a more uniform product.

Morse Chain Co.

The Morse Chain Company, of Ithaca, N. Y., is exhibiting a motor drive, enclosed in a case showing the new Morse Automatic Oiler; also a small sample chain drive with gilt chain case and universal motor. Another exhibit shows very clearly the method of lubrication for large drives.

The new Morse Flexible Coupling is on exhibit for the first time. This consists of a chain wrapping two sprockets. This display shows very clearly how this simple coupling takes care of end play, general misalignment and angular variation.

There is also included in this exhibit a nickel plated chain running from two sprockets with the washers on one sided removed and a Morse Spring Sprocket mounted so that its action is clearly shown.

Nash Engineering Co.

One of the most important exhibits at the Power Show is that of the Nash Engineering Company, of South Norwalk, Conn., manufacturers of Gas Compressors, Air Compressors, Vacuum Pumps, Condensation Pumps, Centrifugal Pumps, Sewage Ejectors, and Condensation Return Systems.

Jennings Flat Box Pump is largely used in the paper industry. Water and air are handled separately in this pump. A turbine air rotor and a centrifugal water impeller are built on the same shaft. For this reason, air capacity is not decreased even when large volumes of water are being discharged against a head.

This large exhibit occupies a prominent space on the main floor of the Show and is attracting great attention.

The Norton Co.

The main part of the exhibit of the Norton Company, of Worcester, Mass., is given up to the display of crystolon (silicon carbide) bricks for boiler furnace walls. Crystolon bricks are heavy duty refractories, non-clinkering and resistant to the abrasion caused by the movement of the fuel bed in Stoker fired furnaces and resistant to the slicing bar in hand fired installations.

A capital projector is used to display a moving picture film which illustrates the uses of Norton refractory products and the complete film is shown in the Projection Room. Alundum cement for setting Crystolon bricks is also displayed.

Oakite Products, Inc.

The exhibit of Oakite Products, Inc., of New York, is designed to graphically illustrate and enumerate the many uses of Oakite in power plants, both large and small. Oakite materials, because of their emulsifying action are remarkably efficient in removing oils, greases and smudge.

Some interesting booklets are distributed at this booth, including "Oakite News Service," and "Oakite In Power Plants."

Palmer-Bee Co.

Mounted on a cast iron sub-base, a speed reducer drive is exhibited at the booth of the Palmer-Bee Company, of Detroit, Mich. The motor in addition to driving this first unit also drives a second reducer by means of a small belt drive. The first reducer is a single series herringbone or helical gear unit. The second unit comprises double series herringbone reducers with a portion of the cover cut out and with a pane of glass inserted so that the action of the oil, the gears, etc., is visible to the spectator.

The Palmer-Bee Company also has another single series herringbone reducer not in operation, with the cover removed so that the construction of the unit, the accuracy of gear cutting, etc., is plainly visible.

B. F. Perkins & Son, Inc.

Mullen Testers, both hand and power driven, are demonstrated at the booth of B. F. Perkins & Sons, Inc., of Holyoke, Mass.

This company is also showing Perkins Core Testers and Perkins Tensile Testers and what is known as the Perkins Two-In-One Tester which gives the bursting strength and at the same time gives the elongation of the material being broken.

Philadelphia Gear Works

The Philadelphia Gear Works, of Philadelphia, are showing different types of industrial gears and pinions and also their standard line of speed reducing units. For almost a half century Philadelphia gears have been made by specialists in that business, and during the intervening years, their quality has built an enviable reputation.

Paralleling the quality of these Gears are Philadelphia Speed Reducers, which are made in all types, sizes and ratios. These are all impervious to dust, dirt and moisture, and are compactly constructed so that they are not great "space takers." Many paper mills are finding Philadelphia Units the ideal drive for Agitators, Filters, Pulp Screens, Winders, Slitters, Calenders, Pumps, Rolls and many other requirements.

Pratt-Daniel Corp.

The Pratt-Daniel Corporation, of New York is showing the Thermix dust fan or fan combined with stack, a new feature for use with pulverized fuel plants with the especial object of collecting the extremely fine fly ash, or for industrial collection, such as cement plant, etc. The special features of the exhibit are the Thermix dust removing fan or fan combined with Stack; Thermix stacks with combined fan of different types; Thermix Air Preheater, improved design; Thermix adjustable soot blower.

Fly ash and dust from pulverized fuel cinders from stokers and industrial wastes to the atmosphere are collected and removed by the Thermix stack. Scores of applications have proved the efficiency of the Thermix in power plant and cement plant practice.

Shepard Electric Crane & Hoist Co.

The Shepard Electric Crane and Hoist Company, of Montour Falls, N. Y., are exhibiting in operation two new compact Lift-Abouts and are also displaying frames containing photographic enlargements of their line of hoisting equipment ranging in capacities from one quarter ton up to overhead electric traveling cranes of 30 tons.

Modern industrial practice exacts vigorous and sometimes brutal service from crane equipment and inevitable overloading, but the Shepard crane is a crane of steel, designed in every detail to meet such service.

Shepard methods of standardized manufacture and a sectionalized trolley construction in interchangeable sections permits each trolley to be built up of units suitable for the service intended

(*Continued on page 76*)

Paper Demand Rather Spotty in Philadelphia

While Some Distributors Report Sales Ahead of Last Year, Others State Business Shows Lagging Tendency—Complaints Heard of Smaller Margins of Profits Due to Continued Small Lot Purchases—Wrapping Paper Moving in Good Volume

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 3, 1928.—While trade has been fairly satisfactory in view of retarding influences on many lines of industry, there has been some complaint of inroads on profits in the close margins above costs upon which sales are made. Competition is keen and while sales are made where prices are suitable to customers, dealers are not benefitted, as profits dwindle in efforts to obtain orders of both fine and coarse papers. There is no open break in the price situation. Whatever concessions are being made are the result of competition rather than any disturbance in mill quotations or fundamental changes in production.

There is a two sided trend to local trading with a few dealers reporting sales ahead of last year at this time while others state that orders are hard to obtain and business shows lagging tendencies. The wholesalers are most optimistic as much of the favorable business is with mill representatives engaged in contract orders or in volume purchases directly from manufacturers. As distributors complain of continued small lot purchases and smaller margins on sales, mill men state that prices are steady and while orders are obtained with effort, they are more satisfactory than at the same period of last year.

Those distributors who were able to stock standard grades of paper at the lower prices that prevailed during the summer are now reaping benefits in profitable business as keenness of competition brings about offerings to induce buying. Dealers are confronted with the fact that present demands for small lot orders and higher cost of handling purchases necessitate stabilized values in order to maintain profitable trading. There is much complaint among both wrapping paper and fine paper dealers over the present situation.

Dealers in sanitary products are enjoying a continuance of summertime demands for cups, towels, napkins and like goods. Though the building trade is not as active as in earlier Fall the various grades of builders papers hold firmly to higher values made last June. The higher interest rates demanded by banks for building operations has retarded this industry and has been reflected in quieter markets for roofings, sheathings, boards and felts. Wrapping papers and corrugated products are in good demand among mercantile consumers.

Over production in the box making industry is reflected in slower shipments of fancy box papers and other paper box supplies. The trade has been informed that box makers are heavily stocked with boxes which are normally fairly well sold out by Thanksgiving. This is true of the set up box industry where many holiday boxes are now on hand and where over production is likely to leave a toll of unsalable wares that must be carried into the holidays of 1929 before they can be disposed of. Those local dealers featuring box makers supplies are accordingly reducing their orders for fancy covers, card boards and like products.

There have been livelier shipments of paper stock, particularly the better grades of book papers and writings, as these supplies are very scarce and are holding at higher prices. All grades of paper stock have shown signs of mill buying with steady prices and few accumulations in the hands of the wholesalers.

Wholesale Waste Merchants Plan Banquet

Plans for the coming annual banquet of the Philadelphia Wholesale Waste Merchants Association will be discussed when the members meet, December 6, at the Lorraine Hotel. There also will be nomination of officers and appointment of a banquet committee. An announcement was sent to the trade last week by the local secretary, William J. McGarity, Sr., head of the Penn Paper and Stock Company.

Grellet Collins To Tour South America

Grellet Collins, president of the Dill & Collins Company, manufacturers of fine papers, sailed last week for a prolonged trip through South America. He will combine a business and pleasure itinerary, looking after the export interests of the Dill & Collins Company, which has been developing an extensive export business for its line of printing papers and book grades.

T. J. Curry Retires From D. L. Ward Co.

Following more than a score of years association with the D. L. Ward Company, Thomas J. Curry has severed his connection with the firm. He was connected with the sales promotion work and in late years had been giving his attention to individual needs of the printing publishing and advertising firms patronizing the Ward company. He will take a brief vacation before connecting with the paper industry again.

Carolina Fibre Co. Offers

With a high grade line of recognized quality, the Carolina Fibre Company, through Vice President and Treasurer P. H. Rogers, offered the Quaker City distributors an exceptionally fine assortment of its butchers fibers during the week. As Vice President Rogers toured the trade he displayed a complete line of all qualities of machine finished butcher fibers which are now being produced in the mills at Hartsville, S. C. These fibers are used extensively by large packers, cotton mills and prominent butchers. They are reasonably priced for their quality and are largely stocked in the Philadelphia trade.

A. Hartung Inc., Carries Curtis Stock

Having been made sole Philadelphia distributor of the line of printing and cover papers made by Curtis & Bros., in their mills at Newark, Del., A. Hartung, Inc., is now stocked with a complete assortment of the various grades of papers made by the manufacturers. The Curtis products will be distributed by the Hartung company in territory comprising a radius of 500 miles of the Quaker City. There will be featured in a drive now under way the Utopian book papers made by the mills, the latest product to be added to the line. The campaign on the Utopian, a high grade wove and laid rag content uncoated book paper, in India, white and four colors, will be conducted in co-operation with the manufacturers. This grade is also used for offset printing. Besides the Utopian papers, the Hartung company will stock the Nonantum, Curtis, Horizon, Paradox and Enfield brands of products in book, cover and writing papers. Since acquiring the distribution of more than a dozen mill brands in the past year, the Hartung company reports a vast increase in its business. Among the lines added within recent weeks are the newest cover papers of the A. M. Collins Manufacturing Company, the Old Spanish Leather and Javanese brands.

Penn Card & Paper Co. Innovations

With consolidation and enlargement of the office forces the Penn Card and Paper Company has provided for the extension of its converting department. The offices have been grouped into a single large ground space on the first floor while the staff

has been augmented. With the grouping of the accounting departments on single floors there has been made available larger quarters for the cutting department. The cutting department is now equipped with several larger cutters that are devoted to converting card boards and papers in any shape and quantity. The latest installation in mechanical units is that of a Herman type Kraus Cutter, of automatic operation. This machine is sold in this country through the Hoffman Type and Engraving Company of New York, and is made in Germany by the Kraus Machine Company.

Japan Paper Christmas Offerings

An exclusive line of high grade French papers adapted for the Christmas season and year round stocking as well, is now offered by the Japan Paper Company through the Philadelphia offices in the Widener Building, under management of Warwick C. Miller. The French products include papeteries in a variety of colors and types of papers, greeting card stocks and announcements and new tissue wrapping papers in novel designs and effects. These are moving fast as holidays stocks where the better class of imported paper goods are required

Hy-G Sales Co. Takes New Lines

Samuel S. Alcorn, who trades under the title of the Hy-G Sales Company, recently removed to new quarters at 219 South 5th street, has taken on a new line of sanitary products, including the Dandyfold napkins made by the Daniels Manufacturing Company, Rhinelander, Wis. The new line is a high grade paper product, for which the local firm is distributor. The new products will be featured by the firm in substitution for the Hy-G Napkins, formerly distributed by the Alcorn concern, which will continue business under the Hy-G Sales Company.

Hy-G Products Distributed By Lowry

The wholesale grocery concern of Alfred Lowry Company, 50 North Front street, has acquired the distribution of the Hy-G napkins, formerly represented here by the Hy-G Sales Company.

D. Mercurelli New Wrapping Paper Dealer

A wrapping paper and specialty house has been opened at 6003 Vine street, by D. Mercurelli. The new paper house carries a complete line of wrappings, bags, twines, and other paper goods.

John Lang Paper Co.'s New Office

Local headquarters are maintained by the John Lang Paper Company, manufacturers of roofings and felts, formerly operating its plant and mills in this city. The Lang mills were recently removed to Gloucester, N. J., where the old plant of the Pusey and Jones Company was acquired and converted into paper mills to meet the needs of the roofing manufacturers. The Gloucester mills are now entirely completed and operating to full capacity. The Philadelphia office has been acquired in the Land Title Building in Room 848, where sales headquarters are maintained. The former site of the Lang mills was taken over by the City of Philadelphia under condemnation proceedings as part of the Parkway, last year.

Mrs. Charles J. Cohen Passes

Mrs. Clotilda Florence Cohen, widow of the late Charles J. Cohen, founder of the envelope manufacturing company bearing his name, passed away at her home in the Tourane, 1520 Spruce street, last week. Her death followed a brief illness. She was prominent in this city for her many charities. Mrs. Cohen was the widow of the founder of the Charles J. Cohen Company, one of the oldest and largest envelope manufacturing concerns in this section. Mr. Cohen died in Atlantic City in September, 1927, at the age of 80 years. He was prominent in civic affairs and was a former president of the Philadelphia Chamber of Commerce and the Fairmount Park Commission. Many of the charities started by her husband were continued by Mrs. Cohen. Surviving are her son Albert J. Cohen, head of the Charles J. Cohen Company, and a daughter, Eleanore Cohen.

Jobbers Buy Crystal Tissues Through Local House

Having made special provision for handling car load lots of Crystal tissues made by the Crystal Tissue Mills, Middletown, Ohio, the Progressive Paper Company is disposing of considerable quantities of these papers to local jobbers. The firm recently took possession of larger quarters at the present address providing for adequate space for stocking car load lots of Crystal No. 1 tissues which it makes its main feature of distribution. Jobbers have been buying freely of these grades through the Progressive company, with its speedy delivery service of any quantity desired. The firm also carries a varied line of wrapping papers, twines, corrugated, and other coarse grades, but has been making tissue the leading distribution factor.

Erratum

The statement made in our November 22nd issue that the P. H. Glatfelter Company had made a reduction in their price lists for M. F. Book Papers is erroneous. This company has made no change in their prices for six months and does not contemplate any reductions.

Pulpwood Prices—Third Quarter, 1928

Reports of the paper industry to the Woodlands Section of the American Paper and Pulp Association indicate that the downward trend of pulpwood prices, reported in the second quarter, is still under way. In practically every instance the average prices for the third quarter are under those reported in the second quarter.

The f.o.b. mill prices for peeled spruce pulpwood in Maine averaged $17.86 per cord in the third quarter, and in New York $18.53 per cord. Rough spruce averaged $13.90 in Maine, $14.54 in Michigan, and $15.40 in Wisconsin. Rough and peeled spruce in Minnesota averaged $12.15 and $17.99 per cord, respectively. These prices are from a few cents to a dollar under the prices reported during the second quarter of the year.

In the Lake states the price of hemlock pulpwood shows little change between the two quarters, and tamarack and jack pine prices varied only slightly. Southern pine in the South Atlantic region and in Louisiana and Texas also varied but little from the prices reported for the second quarter.

The Woodlands Section quarterly summary of the pulpwood situation is based upon the reports from 90 mills in the United States. The detailed summary will be published in the November issue of *Pulpwood*, the monthly publication of the Section.

St. Regis Asks Freight Rate Adjustment on Clay

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., December 5, 1928.—Representatives of the St. Regis Paper Company and its subsidiaries are to file complaint this week with the Interstate Commerce Commission at Washington, D. C., asking for an adjustment of freight rates on clay shipments from Georgia and South Carolina to Northern New York. Joseph A. Quinlan, traffic manager of the firm, is head of the delegation filing the complaint. Today, almost on the eve of the hearing the railroads announced a reduction of from $9.13 to $8.28 a ton. The action brought by the St. Regis Paper Company is to be continued, however, and a request will be made that this section of Northern New York have the same rates as are determined in the case being brought by Glens Falls interests against the same carriers. In the Glens Falls district a rate of $8.28 has been in effect for some time and a request for a reduction is being made there.

Jeffrey Mfg. Co. Appoints Boston Manager

The Jeffrey Manufacturing Company, of Columbus, Ohio, announce that Stanley M. Mercier has recently been appointed manager of their Boston office located at 141 Milk street.

Ontario Book Paper Mills Continue Active

Manufacturers Have Enjoyed Busy Year and Are Well Booked Ahead With Orders—Wholesalers Report All Grades of Paper in Satisfactory Demand, With Exception of Coated Stock—Coarse Paper Market Exhibits Stronger Undertone

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 3, 1928.—Enquiry among the wholesale paper trade in Toronto and throughout the province, where many of the city firms have branches, indicates generally satisfactory conditions with a good volume of business passing in practically every section. All classes of paper are in good demand and sales are being made on a scale that guarantees a good wind-up to what should turn out to be a very fair year in the industry. November has closed with an excellent record of business and one that surpassed the same period last year, although there was some slack to be taken up from the preceding month, which was somewhat quiet in a few paper lines.

Wholesalers report a well sustained call for all classes of fine paper with the possible exception of coated stock. In the latter case there have been some slight recessions during the past week and the new quotations are expected to increase sales materially. There are already signs that the coated paper end of the paper trade is loosening up and it is hoped that within the next week or two sales will materially increase. Books, bonds, writings and ledgers are in good demand and individual sales as a rule are larger than they have been for some time.

The coarse paper market has strengthened somewhat and distributors report less difficulty in placing larger individual tonnages than they have experienced for some time. The replacing of ream lots to some extent by ton lots and the odd car has featured the coarse paper market of late, which means that the wrapping paper mills are fairly busy. There is also a slightly better market for paper bags. Kraft paper demand keeps up well and the market for the product both at home and abroad is in an excellent condition.

Probably the best section of the paper trade from a manufacturers standpoint is that of book paper manufacture. Mills making this line have been busy all year and have always been from one to three or four months ahead with orders. Most of the mills now have orders on their books that will take them well into the new year, while current or routine business that does not take in the future is of good volume. Mills manufacturing such lines as grease proof, glassine and waxing papers are quite busy and there is no difficulty in disposing of all the mills can turn out. In the light weight paper field the mills and jobbers report an excellent volume of business. There is a good demand for tissues and toilets of all grades and specialty lines, such as paper napkins, towels and crepes, for the Christmas trade, which promises to break all previous records. The paper converting trade is busy and stationery and papeterie manufacturers are getting a lot of repeat orders following the sale some months ago of Christmas supplies. Board mills are operating well on to eighty per cent capacity on an average and some of them are hitting a hundred per cent under insistent demand for board from the paper box manufacturing trade which is one of the most prosperous sections of the paper industry.

There is a good demand for practically all classes of rag and paper stock—especially paper stock—the board mills being largely responsible for the big call for cuttings. Collections and supplies of stock are quite heavy and are more easy to get as far as the paper mills are concerned by reason of the fact that demand for stock in the United States has slackened somewhat, leaving more for the domestic mills which will take all they can get.

Government Sells Big Timber Area

Sale of 65 square miles of timber in the Onion Lake section of the Thunder Bay district, valued at $500,000, and containing approximately 250,000 jack pine ties, 100,000 cords of spruce pulpwood, 25,000 cords of balsam pulpwood and 30,000 cords of poplar pulpwood, to E. E. Johnson, of Port Arthur, Ont., extensive timber operator around the Head of the Lakes, was announced at Queen's Park, Toronto, this week, by W. C. Cain, Deputy Minister of Lands and Forests. Mr. Johnson paid 24 cents each for ties, $2.75 a cord for spruce pulpwood, $2.65 a cord for balsam pulpwood, and what is described by the Lands and Forests Department as "the unprecedented price" of $4.25 a cord for poplar pulpwood. Mr. Johnson is at the present time licensee of an adjoining area in which large river improvements have been made and which will have to be supplemented to market the timber on the area just bought. The high price he paid for poplar pulpwood is attributed by Mr. Cain to his having an immediate prospective market for that class of wood.

Canada Pad & Paper To Build

Made necessary by its expanding business, the Canada Pad and Paper Company, Ltd., which for some years had operated a plant on King street West, Toronto, has decided to build a new plant, and has purchased property on Madison avenue, just south of Davenport Road, on which a fine new structure will be erected. The contract has already been let on plans prepared by the N. A. Armstrong Company, architects. These call for a building of steel and concrete, 105 by 105 feet and four stories in height. The new factory will have its own C. P. R. railway siding. Provision is to be made for the adding of extra stories when necessary. The president and manager of the Canada Pad and Paper Company, Ltd., is R. C. Hill, widely known in paper circles throughout Ontario.

Ferguson Hopeful About News Print

"The situation is at least hopeful," said Premier Ferguson, back in Toronto from a conference of paper manufacturers, held in Montreal, at the end of the week to deal with over-production and development conditions in the news print industry in Canada. "I think it will probably be adjusted satisfactorily though probably not this week nor next." The Premier stated that it had been agreed that Premier Taschereau, of Quebec, should give out any official statements to be issued, and declined, therefore, to comment for publication upon the situation as discussed at Montreal. He is anxious, however, that redistribution of business to achieve uniform operation at about 80 per cent of capacity, as agreed upon among the operators, should be upon a mill, not a company basis, so that towns dependent upon the pulp and paper industry in Ontario may be helped. As the plan will apparently be worked out, mills now closed will resume operation, while mills running at capacity will drop to four-fifths. "Some mills can operate a little more cheaply than others, and there might be a tendency to carry on all production at these points," the Hon. Mr. Ferguson said, "but what the Government wants to do is to protect the workers. We want all the mills of every company to keep operating, so that there will be no distress in these towns. There has naturally been some anxiety also on the part of shareholders."

Effect on Mills at the Soo

The agreement of 80 per cent production in all the Ontario and Quebec paper mills reached at the conference in Montreal, will not mean a great deal of change in the mills at Sault Ste. Marie, Ont., as the Abitibi mill there has been running at 80 per cent capacity or slightly better during the last few weeks, but it

will ensure a steady condition there and prevent any danger of a shut-down or a curtailment of operations, it was announced by George R. Gray, of the Abitibi company this week. Increased production, however, will result at Espanola, which has been running at only about 50 per cent capacity, and also at Sturgeon Falls, while the Fort William mill, which has been closed down entirely, will be re-opened.

Merger of Sales Book Concerns

Creation of the Moore Corporation, Ltd., by the amalgamation of the preferred and common stocks of American Sales Book Company, Pacific-Burt Company and Gilman Fanfold Corporation into a holding company, has been announced by President S. J. Moore, of Toronto. The merger will result in a $6,000,000 combine, with 500,000 outstanding common shares of no par value, engaged in the manufacture and sale of sales books and continuous manifold forms of all kinds. Organization of the new holding company is being conducted through an incorporation under the Ontario Companies Act and will have as its executives practically the same guiding hands which have controlled the individual companies for some time. The officers of the corporation will be as follows: President, S. J. Moore, Toronto; 1st Vice-President, E. G. Baker, Toronto; 2nd Vice-President, A. M. Bovier, Elmira, N. Y.; 3rd Vice-President, W. N. McLeod, Toronto; directors, A. E. Ames, Toronto; Thomas Bradshaw, Toronto; C. W. Colby, Montreal; H. S. Duell, New York; H. H. Griswold, Elmira, N. Y.; A. J. Mitchell, Toronto, and S. G. H. Turner, Elmira.

New Abitibi Co. Woods Manager

L. R. Wilson, vice-president and managing director of the Abitibi Power and Paper Company, Iroquois Falls, Ont., this week officially announced the appointment of H. G. Schanche to the position of general manager of all woods departments of the company. Mr. Schanche went to Iroquois Falls in the early spring of 1919 as chief forester for the Abitibi company. This marked the beginning of the development of an efficient and practical program of applied forestry for the company. In 1920-21 he worked out the final scheme covering logging by railroad of areas not controlled by water. In 1923 the woods and forestry departments were combined and Mr. Schanche became manager of both departments. This appointment was followed by his taking the position of general manager of the Abitibi Transportation and Navigation Company. C. B. Davis has been appointed woods manager of Iroquois Falls Division.

Toronto Jobbers Entertained at Dinner

An enjoyable little function took place in the yellow room of the King Edward Hotel a few days ago when the Howard Smith Paper Mills, Ltd., entertained the wholesale paper merchants of Toronto at a dinner at which 56 representatives of paper houses in the city sat down. The gathering was presided over by George A. Davidson, sales manager of the company, and the chief speaker of the occasion was the company's advertising manager, Ernest Rolph, who spoke on the activities of his department. Other speakers were Fred W. Halls, of the Fred W. Halls Paper Company, and Harry Hooke, of Brown Brothers, Ltd. Charles F. Mansell, as the dean of the paper trade in Toronto, was given a seat of honor at the Chairman's right. Various trade problems were discussed and the company was tendered a hearty vote of thanks for the generous hospitality provided.

Coating Mills Reduce Ton Lot Prices

The Mills Relations Committee of the Canadian Paper Trade Association held a meeting in Toronto a few days ago with the coated paper manufacturers, when after some discussion it was decided to accept new prices and regulations governing the sale of coated stock. A reduction was made in ton lots direct mill shipment, with the idea of stimulating the sale of the product and increasing its use. Among those at the meeting were J. Bruce Brown, of the T. B. Little Company, Montreal, and president of the Canadian Paper Trade Association; George W. Pauline and other representatives of the newly formed Alliance Paper Mills, and J. B. Larkin, of the Federal Paper Company, Montreal.

Notes and Jottings of the Trade

Canadian printers, bookbinders, lithographers and allied trades are preparing a brief to be presented to the next sitting of the Canadian Parliament appealing for higher tariff duties on printed matter entering Canada. In the case of clause 169, covering pulp, paper and books, the brief will recommend a reduction in duty of from 15, 22½ and 25, to 5, 10 and 10, the same as bound books in clause 171. The book publishers maintain that the binding of a book represents 54 per cent of its cost, hence they would be able to bring in, at a saving to themselves, many unbound books, flat or folded, and have them bound in Canada.

Litho Print, Ltd., Adelaide street West, Toronto, who include envelope manufacture in their activities, have purchased a block of land on Duke street in that city and will erect a modern factory building.

"For the Printed Message of Fine Quality," is the title of an attractive broadside just put in the mails by the Fred W. Halls Paper Company, Ltd., Toronto, advertising Durable Folder Superfine, which they handle. Samples are enclosed and are designed to show the fine printing qualities of the stock.

John Martin, manager of Provincial Paper Sales, Ltd., Winnipeg, was a business visitor in Toronto recently.

W. R. Scott Dies From Injuries

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALS, N. Y., December 1, 1928.—Following injuries received a week ago at the South Glens Falls mill of the International Paper Company, William R. Scott, master mechanic at the plant, died Saturday at the Glens Falls Hospital. Mr. Scott's right arm was crushed to the elbow when drawn into a paper machine at the plant and amputation was necessary. He failed to rally after the operation and his weakened condition resulted in his death. He was 36 years old and during his service with the firm he had made many warm friends who deeply regret his passing. He was prominent in the fraternal and civic life of the city being actively identified with a number of prominent organizations. The widow, two daughters and a brother, Walter J. Scott, of Syracuse, are the survivors.

River Raisin Mill Orders More Biggs Boilers

AKRON, Ohio, December 3, 1928.—The River Raisin Paper Company have just ordered two additional rotary bleaching boilers from the Biggs Boiler Works Company, to be installed at their plant in Monroe, Mich., making a total of ten 14-ft. bleaching boilers installed at this plant.

The Biggs Boiler Works Company reports that their new process of welding has been developed to the extent that they are now building heavy welded digesters and rotary bleaching boilers by the electric welded process. There are eight special 14 foot diameter machines in production at this time. The volume of paper mill business secured by the Biggs Boiler Works Company in 1928 is regarded to have been very satisfactory.

Finnish Pulp Exports Increase

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 5, 1928.—During the ten months ended October 31 the Finnish Cellulose Association exported 276,323 tons of sulphite pulp and 70,715 tons of sulphate against 205,328 tons and 54,542 tons respectively during the corresponding period of last year. In addition to the above quantities 16,506 tons of pulp were exported by the Diesen Wood Company during the first ten months of this year.

Chicago Paper Market in Satisfactory Position

Local Dealers Enjoy Excellent Request for All Grades of Paper, Due to Opening of Christmas Shopping Season—Fine and Coarse Paper Merchants Feel Buoyant Effects of Business Expansion—Paper Stock in Better Demand

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 3, 1928.—The Thanksgiving holiday cut quite a piece out of the past business week and gave a number of paper salesmen and executives an opportunity to visit out of town over the week end. However, the drive that will continue until the holiday season is over, opened auspiciously today with thousands of buyers thronging Chicago's loop stores. Wrapping paper and fine paper houses are feeling the buoyant effects of these holiday shoppers, with the wrapping paper interests especially going through a peak season with the way clear and bright at least until the first of the year. Fine paper prices are holding up well with demand improving each week. Book and cover papers are fair, somewhat better than last week, with prices holding firm. Tissues are good, with orders in some grades ten days to two weeks behind, according to reports.

The news print situation is the topic of discussion wherever news print forms a part of the business of the organization. Considerable information comes in that the situation is rather unsettled as the 1929 prices are, at this writing, being withheld, according to information. The announcements of one gigantic news print firm are expected to prove very interesting within a short time.

The waste paper market is said to be better, with those grades used in making of board benefitting by the excellent position of that market. White shavings used in the making of board are in especially good demand. Prices are firm.

Chicago Paper Association to Meet

The Chicago Paper Association will hold its first meeting under the leadership of its new executive cabinet on December 11 at the Bismarck Hotel, Chicago. The new administration will take over the reins at that time, but with Leo Altholz again elected president, the work of the past year will probably go forward in much the same satisfactory fashion that it has during the past twelve months. Policies for 1929 will be discussed and the work of Stevens-Harrison-Jordan, engineers appointed as business counselors for the association, will get under way, with all members advised as to the plan of procedure. During the coming year it is expected that a closer relationship with the Milwaukee coarse paper association will be formed; that a number of interesting social events will feature the program and that the same active measures to improve the market here in Chicago will be taken up. Trade practices, measures of making practical usage of the studies of net profit control that have featured the past year, constant efforts to improve existing good feeling between members of the trade and a wide awake policy in keeping in touch with other organizations and associations are all on the boards for 1929.

L. S. Solar Addresses Salesmen

L. S. Solar, chief chemist of the Ault & Wiborg Ink Company, 707 South Wells street, Chicago, was the chief speaker at a very successful meeting of the Chicago Division of the Salesmens Association of the Paper Industry held at the Hamilton Club, Chicago, Monday, November 26. Twenty-five salesmen were present to hear Mr. Solar discuss the use of inks in their relationship to paper. An authority on the subject of inks and their usage, Mr. Solar also talked in terms that gave those present a thorough understanding of his subject and, by reverting to a common ground of discussion, the Ault & Wiborg chief chemist turned the meeting into a general meeting rather than a solo affair. While explaining to the salesmen that inks were sometimes at fault and that the paper, too, had a great deal to do with the neatness, attractiveness and legibility of the job in question Mr. Solar answered questions that eventually turned the meeting into an open forum. The salesmen present got a great deal of practical knowledge from the event, the third in a series of speakers provided for the popular meetings.

The two speakers previous to Mr. Solar were Leo Altholz, of the Inlander-Steindler Paper Company, and Noble Gillette, of the Chicago Paper Company. Harold Knott, president of the local association, is not yet ready to announce the next speaker but he has informed the writer that he is working on two or three men well known in their respective fields to appear before the salesmen and carry on the educational discussions conducted by the first three speakers.

News of the Trade

The Chicago Paper Company has recently sent out to the printing and advertising trades a book describing the advantages of printing on Collins Laidtone letter paper, accompanying the selling talk with illustrated samples of color printing on the paper under discussion. The paper is a worthy follower of Laidtone book, being of brightly colored duplex paper that adds greatly to advertising effectiveness. The paper has a "semi-dull" coated finish and is white on one side with the advertiser or printer getting the choice of buff, orange, yellow or brilliant blue, as the color of the reverse side.

The Hampden Glazed Paper and Card Company, Holyoke, Mass., has reached the Chicago trade with a new folder describing the beauty and usefulness of Sunburst covers in getting attractive advertising that complies with the modes of this day and age. Included in the four page folder which is printed (inside pages) on Capri coated tint, Italian blue, is an illustration of an advertisement used by a national advertiser, together with a description of colors used, etc. The folder also announces two informative text books, consisting of a service including suggestions and actual color sketches on Sunburst and a book called "Constructive Cover Design" for use in the creation of unusual cover designs. The cover of the folder is in Sunburst—Roman Gold—2 ply. Chicago distributors for Sunburst are the J. W. Butler Paper Company, James White Paper Company and the Paper Mills Company.

A recent announcement by the James White Paper Company is to the effect that they have added to their comprehensive line of cover and book papers to the extent that they now carry in stock 48 lines of cover paper, 12 lines of book and 5 lines of box cover.

The E. H. Vavra & Co. organization, at 649 West Washington street, has announced the change of their name to the Rock River Paper Company, according to reports received today.

An increasing number of organizations not directly aligned with the printing industry have been asking for an opportunity to view the educational film used by Bradner, Smith & Co. to illustrate and depict the story of paper making in a concise and forceful fashion. For the past two months, not only printers and advertising groups have been asking to see the film, but schools, Kiwanis and Rotary clubs are also asking to see this film on such an interesting subject. According to word from Bradner, Smith & Co. the film has been shown on an average of twice a week for nearly a year.

News Print Mills Adopt Suitable Working Plan

Leaders of Industry Anticipate Stabilization of Prices as Result of Recent Conferences in Quebec and Montreal—Agree on Broad Issues and Promise Concerted Action—Desire Expressed That Present Entente Shall Be Made Permanent

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 3, 1928.—The past week has been another week of conferences between the leaders of the news print industry, this time in Quebec instead of Montreal, and the result has been another announcement by Premier Taschereau, who says, "What was commenced in Montreal has been brought to a success. All are delighted with the results, and have agreed upon a suitable working plan. Those in conference have agreed on the broad issues and a plan of concerted action, and every one is satisfied that this will mean the stabilization of the industry, and its return to its former properity."

A further statement—also official—is that those who attended the various meetings, both in Montreal and Quebec City, were unanimous in a desire that the present entente should be permanent, to deal with whatever problems should arise in the industry in the future.

The delegates at tthe conferences, which began three weeks ago in Montreal, represented fifteen companies, eleven from Quebec and four from Ontario, with a combined capitalization of $600,000,000.

A. R. Graustein Prominent in Conferences

A prominent figure in the conference held in Quebec has been A. R. Graustein, the president of the International Paper Company, and it was the contract entered into by his company with the Hearst interests which provided one of the most difficult problems to be dealt with. The contract, it is said, is a huge one, and runs for three years.

There are various versions as to the price—some papers have stated that it is $50 per ton; some that it is either $51.50 or $52 at the mill. Any of these prices is, of course, much less than recent prevailing market prices, and the question has been as to how the contract could be distributed seeing that a price of around $50 is a non-profitable one for most mills.

The general agreement, as stated last week, is that there is to be some kind of pooling of orders and distribution of them among existing mills on the basis of 80 per cent of their capacity. Some of the mills have been working at capacity; others at much below capacity. What is "capacity"? Some mills have a theoretical capacity that they have never had an opportunity of testing out; others have brought production above theoretical capacity.

Question of Price

Then again there is the question of price. If a mill turns out a portion of the Hearst contract at $50, $51.50, or $52, how can it charge a higher price to other customers? If even $52 is set as the general price, then it is agreed that quite a number of mills will have a hard time in maintaining dividends, though bond interests may be met. In any case mills that have been running at full capacity will sorely miss the revenue when cut down to 80 per cent of capacity.

However, there is nothing official to go upon as to price. Some affect to believe that it will be $52 at the mill for 1929, and some hope that it may be $55.

Attitude of Other Provinces

Another problem is, what will news print interests in New Brunswick, Nova Scotia and British Columbia do? Premier Baxter, of New Brunswick, has already announced that he will not allow the budding news print industry there to be strangled. The other Provinces may take the same view. Then there is Newfoundland. The International Company's interests in New Brunswick and Newfoundland will probably take care of the situation in these two places, but meanwhile Nova Scotia is going ahead with a large addition to Canada's present news print capacity, and big plans are under way in British Columbia. There is a feeling that the Federal Government may have to step in to prevent provinces outside of Quebec and Ontario from complicating the agreement entered into. This, however, is ticklish ground, for the Provinces are very jealous of federal interference in regard to their natural resources.

Will United States Approve?

Meanwhile the newspapers find the subject full of other complications, and are wondering where the ramifications of this agreement will end. For instance, the *Financial Times* of Montreal asks "What will Americans think?" It proceeds:

"American reactions to the policy adopted by the news print interests of the Dominion for the solution of the present overproduction problem will be interesting to watch for. The market whose supply is to be regulated by that policy is made up of the news print consumers of both the United States and Canada; but the share of Canada in the whole is so small as to be almost negligible. In effect, the policy is one for the regulation of export prices, the United States being the export market. Such arrangements have not always been viewed with approval by the United States and especially by Mr. Hoover, the president-elect. Precisely what the American government can do about it is not clear, but there remains of course the well-worn threat of opening up the pulpwood resources of Alaska to make the Republic measurably less dependent upon Canada five or ten years hence.

"Some modification from, say, the entirely hostile attitude adopted by the United States toward the rubber restrictions of a few years ago may be expected to result from the fact that the owners who will benefit from the present Canadian agreement regarding news print are to quite a large extent Americans. For that matter, we presume that the agreement will really be beneficial to quite a considerable number of news print mills actually situated in the United States, which would certainly be among the first to suffer from any unlimited price-cutting. Altogether the practical considerations in this case probably outweigh the purely logical ones which would tend to cause the United States to regard the agreement as an effort by 'foreign' producers to hold up the American consumer. But we shall still look with interest for what American authorities have to say about it."

Change in Public Attitude

The *Montreal Herald* points to the part which the Premiers of Ontario and Quebec have had in bringing the news print interests to an agreement the object of which is to raise the price of news print. It says:

"This is the most startling and dramatic illustration that has yet occurred of the change which has come in the past few years in the public attitude toward big business. It was not so long ago when manufacturers were forbidden to organize for price-fixing purposes. The United States have their Sherman law still unrepealed, and in Canada there is a Federal Act which promises heavy fines and even prison for offenders. Truly as the market letter of a Montreal brokerage firm says, Canadian business men who have suffered from excessive competition and have been for-

(*Continued on page 84*)

Improvements Rushed on Wisconsin Paper Mills

Consolidated Water Power & Paper Co. Expansions Progressing Rapidly—Digester Plant of Interlaken Pulp & Paper Co. Nearly Ready for Operation—New Smoke Stack of John Strange Paper Co. Almost Completed

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 3, 1928.—Improvements on several mills are being hurried because of the arrival of wintry weather. Workmen are pouring the last of the concrete on a new smoke stack at the John Strange Paper Company, Neenah, Wis. The stack is 220 feet high and is included in the improvements which are being made to the boiler room and power plant.

Walls of the new finishing room at the main mill of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., have been finished and the roof is under way. The new bleach plant at the same mill is taking shape rapidly and will be enclosed soon so the interior work and installation of equipment can be started.

The hot pond for wood has been enlarged at the Consolidated mill so as to take care of greater capacity. A new slasher saw has been installed and is ready for operation.

Barking drums at the Consolidated company's mill at Biron are being renewed as fast as conditions will permit. They are being shut down one at a time and replaced so that the equipment will be in first class shape. A part of the brick smokestack is being rebuilt and the entire surface repointed to prevent frost damage during colder weather. Lightning rods are also being placed on the stack for future protection.

Five of the steel shells of the new digester plant of the Interlake Pulp and Paper Company, Appleton, Wis., are complete and steel workers are busy on the other four. Work is well under way also in lining of the digesters with acid resisting brick. Much of the conduit and piping also is in place. It is expected that this plant will be ready for operation shortly after January 1.

New Harland motors have been placed on machine No. 2 of the Consolidated Water Power and Paper Company's mill at Port Arthur, Ont. These replace temporary installations which were necessary last spring when motors shipped by boat were lost with the sinking of the steamship *Kamloops*.

Pulpwood Freight Rate Decision

Freight rates on pulpwood shipped from Canada and Minnesota to Wisconsin will remain unchanged, according to a decision rendered by the Interstate Commerce Commission. The ruling followed the filing of a petition by the Tomahawk Pulp and Paper Company, of Tomahawk, Wis., in which they contended that the rates were unreasonable. Most of the pulpwood is shipped by way of Superior, Wis., at rates ranging from 16 to 22 cents.

Paper mills were favored in another case when the commission denied permission to the Western Trunk Line railroads to file blanket tariff supplements increasing freight rates on a wide range of commodities. The railroads asked the commission to vacate or amend 143 outstanding orders. They contended such action was necessary because of increased operating costs. Pulpwood was one of the important items mentioned.

New Safety Achievements

New safety achievements have been announced by the Kimberly-Clark Corporation at its mill at Kimberly, Wis., and by the Consolidated Water Power and Paper Company, at its mills at Biron, Stevens Point, Appleton and Ashland, Wis.

The plant department of the Kimberly mill operated for 310 days without a lost time accident, with an average payroll of 100 men. This makes 31,000 "man days" of safety. The reward was a check for $5 presented to each employ in the department. The yard crew was given especial credit because of the greater exposure to accidents.

Operation for three consecutive months without a lost time injury was accomplished by the Biron mill of the Consolidated company. The other three mills, Stevens Point, Appleton and Ashland, had a clean slate for two consecutive months. About 1,000 men are employed in this group of mills.

News of the Industry

Paper mills at Green Bay, Wis., now represent an investment of $14,000,000, according to information contained in an address made recently by Lee Jonte, of the engineering department of the Hoberg Paper and Fibre Company, of this city. The mills pay annual taxes to the city of $10,000. They employ 1,400 persons. Mr. Jonte also revealed some interesting history of the paper industry and its remarkable growth.

H. B. Somerset, of Melbourne, Australia, has joined the staff of the United States Forest Products Laboratory, Madison, Wis., and will spend one year there. He is in this country to study pulp and paper chemistry and methods and will work as a member of that division in the laboratory. Chemists from Finland, Poland and Sweden have also joined the laboratory staff in order to study the chemistry of wood, principally that of ply-woods.

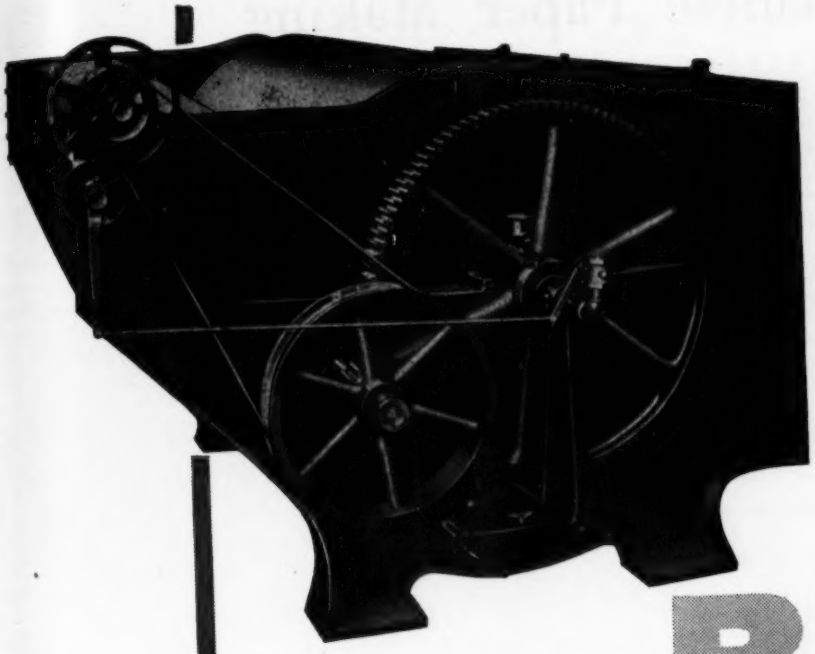
Newspaper advertising is being used by the Marinette and Menominee Paper Company, of Marinette, Wis., to obtain pulpwood. Spruce is being bought at $16 a cord, balsam at $10:50 and hemlock at $8.50. The mills are located close to the northern Wisconsin forest area and the advertising induces wood cutters to bring in their wood by truck. All wood must be peeled before delivery.

Training classes for foremen in the paper industry in cities of the Wisconsin River Valley ended last week. A new series will start this week in the Fox River Valley and at Marinette, Wis. The enrollment in the Wisconsin river section was 243, and the number expected in the new series is 325. Vocational schools in the various cities have sponsored the organization and conduct of the classes, under the direction of H. G. Noyes, state paper mill co-ordinator. Many of the sessions are conducted right at the mills.

Ernest Mahler, of Neenah, Wis., has been honored with election as a member of the board of trustees of Lawrence College, Appleton, Wis. He fills the vacancy caused by the recent death of J. A. Kimberly, late president of the Kimberly-Clark Corporation. Mr. Mahler is vice president in charge of manufacturing of the Kimberly-Clark company and is an internationally known chemist and paper expert. He has had a deep interest in the problems of higher education, especially in the realm of science.

Miss Norma Bornfield, nurse at the Marinette and Menominee Paper Company, Marinette, Wis., is alive today although a company automobile which she was driving was totally wrecked. The machine was struck by a freight train at a grade crossing last week. Miss Bornfield was unhurt and made her own report of the accident to the office by telephone immediately after it happened.

Illness prevented L. M. Alexander, president of the Nekoosa-Edwards Paper Company, of Port Edwards, from taking a principal part in the laying of the cornerstone last week at the new $300,000 gymnasium of Lawrence College, Appleton, Wis. Mr. Alexander made the building possible by a donation of about half of the sum needed. He is president of the board of trustees of the college.



BIRD MACHINERY

The Bird Save-All is your idea of the right Save-All for your mill — —

Let us show you why

BIRD MACHINE COMPANY

South Walpole : Massachusetts

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Japanese Paper Making

By Shigeo Nakane

There was once a time when we spoke of Japanese paper, we understood it as hand-made; in other words, Japanese paper was synonymous with hand-made paper. But it is not so any more. With the introduction of modern methods of production into all lines of industry, even the field of hand-made paper making seems to have been invaded by modern machineries and to-day, it is surprising to know that more than half of Japanese paper produced in this country, is machine-made instead of hand-made. And it is even rumored that sometime in the future, there will be no more hand-made paper seen in the market.. Fortunately or unfortunately, however, there seem to be always some natives in the country who do not believe in changing their hereditary and traditional occupations. It is by this group of native paper makers that the old and typical way of hand-made paper making in Japan is kept up at present and will be continued to the future.

Japanese Plant for Paper Making

Since ancient times materials for Japanese paper making, as known among the paper makers of the world, have been such Japanese plants as Koso (Makoso and Takoso), Mitsumata, Kaji and Kuwa, all belonging to the mulberry family. But supplies lately have been getting so short because of increasing demand for paper that finally straw and wood pulps have come into use. As the result of this, all the Japanese papers made either partly or entirely from straw or wood pulp, have lost their original characteristics and naturally have grown to resemble machine-made or so called foreign style paper.

Such Japanese plants as Koso, Mitsumata, etc., are not by any means grown everywhere in Japan nor in abundance. They can only be found in certain prefectures namely: Kochi, Yehime, Shimane, Yamaguchi, Tottori, Tokushima and Okayama. Herewith are presented some figures for the production of Koso and Mitsumata:—

	Koso	Mitsumata
1919	7,015,028 Kan [1]	5,752,493 Kan [1]
1920	7,595,908	6,017,867
1921	6,627,060	6,662,767
1922	5,379,635	5,128,239
1923	4,940,366	4,981,903

[1] Kan = 8.23 lb.

The above table shows that the use of Koso and Mitsumata for paper making is gradually decreasing while on the other hand, it indicates that wood pulp, which is comparatively inexpensive, is increasing.

Using More Chemicals

The modern hand-made paper making is not in fact different from the methods practiced several hundred years ago. The entire process has been well described and illustrated in the rare book called Kamisuki Chohoki or Paper Making Hand-Book written by Jihei Kokto, one of the oldest and foremost paper makers of Japan. A review of this book has already been made by Mr. R. S. Kellogg in the PAPER TRADE JOURNAL of September 13, 1928. So, the description of the process will not be repeated here. But in present practice, they are beginning to use more chemicals such as caustic soda or soda ash in cooking, and regular bleaching powder for bleaching. Furthermore, rice starch and clay are used as fillers and are added to the stock before the making of the sheets of paper.

Probably due to the fact that there are many farmers in the country who make paper as side jobs, it is almost impossible to obtain exact statistics for the yearly production of Japanese paper. But the Bureau of Industry gives the following table of production which includes both machine-made and hand-made Japanese paper. It is to be noted that 40 per cent of the production is hand-made.

	Mino Paper		Hanshi		Others
	Amount pounds	Value yen	Amount pounds	Value yen	Value yen
1919	385,000	9,518,000	4,614,000	23,423,000	46,632,000
1920	321,000	5,914,000	4,146,000	17,937,000	41,410,000
1921	488,000	7,154,000	3,994,000	17,050,000	36,906,000
1922	499,000	7,084,000	3,927,000	14,688,000	42,713,000
1923	551,000	5,663,000	3,464,000	12,185,000	32,599,000
1924	552,000	5,637,000	4,325,000	13,165,000	34,633,000
1925	540,000	5,206,000	4,334,000	12,596,000	35,207,000

Just as there are certain localities where paper making trees are grown, so the making of Japanese paper is done only in certain parts of Japan. Provinces where Japanese paper is made, are as follows: Kochi, Yehime, Yamaguchi, Shidzuoka, Hyogo, Gifu, etc.

The prefecture of Kochi which lies in southern Japan, comes first in the production of Japanese paper. It is said to have produced 9,110,000 Yen worth of Japanese paper during the year 1925 covering 1/6 of the total production of the country. 45 per cent of the above was hand-made. The varieties of paper made here are Hanshi, Torinoko, Hosho, Senka paper, copy paper, ink proof paper and straw paper.

The prefecture which comes second in the production, is Yehime where it is said, over 70 per cent of native paper makers are still making hand-made paper. They produce here copy paper, Shoji paper, Toilet paper, Hosho, Tissue paper and Senka paper.

Gifu comes next in production. This is known as the province where practically all of the native paper makers are making hand-made paper. Such papers as Copy, Shoji, Toilet, Hosho, Mino, Senka and Tissue are made.

The next prefecture is Shidzuoka. This province also used to produce only hand-made paper, but now, most of the paper is made by machines. Hanshi, Mino paper, Toilet paper, Gampi paper, and Hakyo paper are made.

The Province of Yamaguchi which comes next, used to be a big producer of hand-made paper but lately, it has changed to a producer of machine-made paper such as Hanshi, Shoji.

Japanese paper thus produced in Japan, is mostly consumed in this country but a great deal also is exported to foreign countries such as China, South Sea Islands, America and England. For example, during the year 1927, Japanese paper exported to these countries was 2,997,000 lb. amounting to 2,622,000 Yen. Among the papers for export are Torinko for documental use, Gampi for copying use and Yoshino paper for toilet and wrapping.

As already mentioned, there are many varieties of Japanese paper but the principal ones are as follows:

Hanshi-(rice paper) and Mino Paper were formerly altogether made from Koso but lately they are being made from mixed pulps. They are used for Japanese writing.

Torinoko paper is made from Mitsumata. As the paper is very strong and thick, it is used for document, bond, diploma, etc.

Yoshina paper (Tissue Paper) is the thinnest of all the Japanese paper and is made from Koso. It requires extraordinary skill to produce this paper. In Japan, it is used for lanterns, glass pasting, etc., and the thicker one is used for napkins.

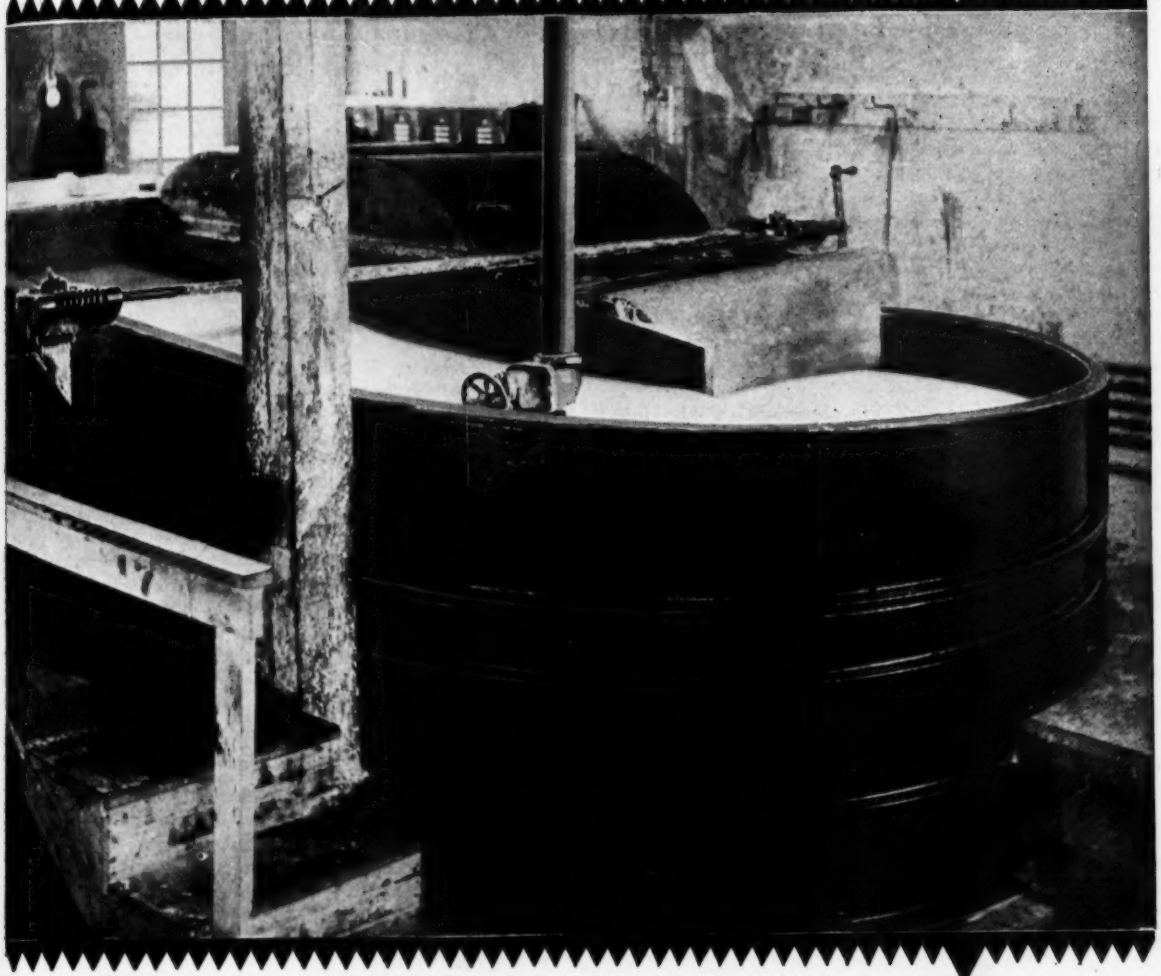
Hakyo paper is sometimes called Gampi Paper (thin rice paper), is made from Gyoka (wild grass). The paper is thin and glazy and is used for book, accounting, copying, etc.

Hosho and Sugihara are made from better grade of Koso skin with some rice starch added as fillers. Both of them are used for ceremonial presents as they make good-looking wrappers.

Senka paper was formerly made from Koso skin but lately it has been made from wood pulp. So, it is losing its characteristic quality. It is used for Japanase umbrellas, lanterns, etc.

Low grade paper which is used for toilet and miscellanea, is mostly re-made from old paper or from Mitsumata with the addition of about 40 per cent of clay.

There are also such papers as Tosa, Suruga, and Yedogawa.



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Two New England Paper Houses Consolidate

Carter, Rice & Co. Corp., of Boston, and Charles A. Esty Paper Co., of Worcester, Join Interests —Reorganized Institution Retains All Strength of Individual Concerns Under One Management As Single Unit of Service—Herbert L. Carter Heads Merger

BOSTON, Mass., December 4, 1928.—Two long-established concerns, the Carter, Rice & Co. Corporation and the Charles A. Esty Paper Company, have formed a merger under the name of Carter, Rice & Co. Corporation. The Carter, Rice company has its offices in Boston. The main office of the Esty company is in Worcester, Mass., with branches in Boston and Springfield, Mass.

The announcement of the merger states that "we want to emphasize that out of the consolidation comes a reorganized institution retaining in personnel, in tradition, in lines and in facilities all of the strength of the individual concerns, but combining them under one management as a single unit for service; more efficient in every respect than the total of both companies independently owned and operated."

The officers and directors of the new organization will be Hubert L. Carter, president; Winthrop L. Carter, vice-president; Charles A. Esty, managing director; J. C. Kennedy, treasurer; L. W. Angell, secretary; George H. Lowe, chairman of board; Edward D. Bement, Eliot A. Carter, and William H. Dunbar, directors.

Established 57 Years Ago

Fifty-seven years ago James Richard Carter and Fred W. Rice, 21 and 20 years old respectively, founded on the second of January, the first of the month falling on a Sunday, the now well-known house of Carter, Rice & Co. At the time of the formation of the company the entire paper production of the country was less than that of two or three mills operating now, but competition was just as keen. Mr. Carter, when alive, used to enjoy telling of the humble start, with push-cart delivery, of the early commercial history, and especially the tumbledown establishment in Spring Lane, the birthplace of the present sizable company.

Almost immediately after the embryo company was formed, three undesirable events took place. First the Chicago fire disrupted national affairs. A year later the Boston fire caused great destruction, although good fortune saved the building in which Carter, Rice & Co. operated. Another year later the financial panic of 1873 occurred. On account of the national distress, the company did not show great growth during the first three years, but laid a foundation for the remarkable development of succeeding years.

Steady Expansion Program

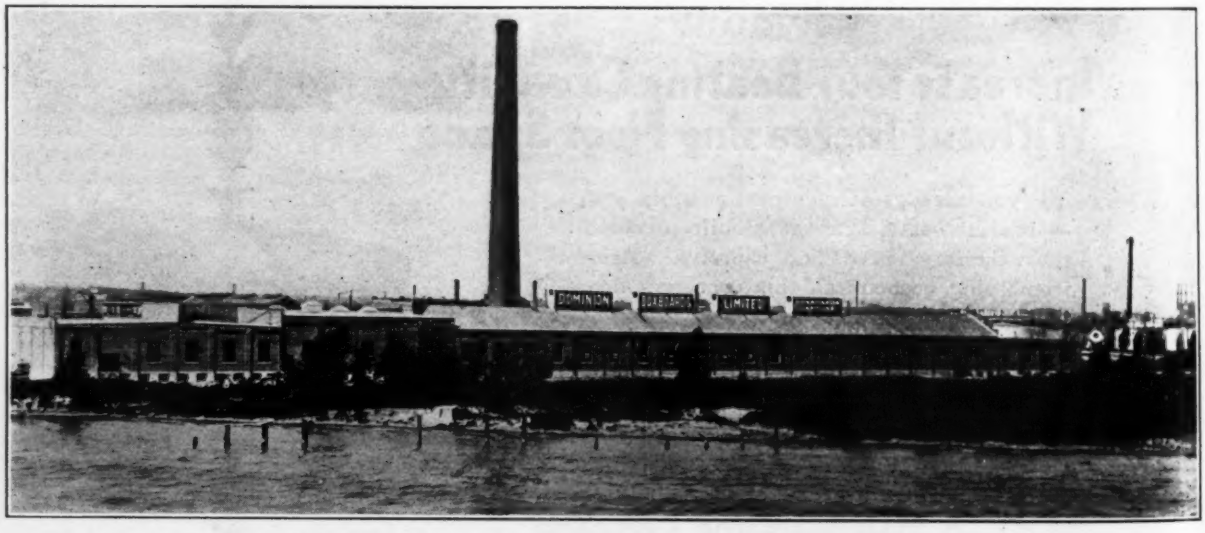
James Richard Carter often remarked that the success of the company was due primarily to two things. Both partners were born to forebears with paper manufacturing experience. The other factor was "Service to Customers," the company slogan to this day. As the company grew in scope, Mr. Carter and Carter, Rice & Co. Corporation took on allied manufacturing interests. In the expansion program, Mr. Carter's sons, Hubert L., Winthrop L., and Eliot A. took their places, and under their direction the concern increased greatly in development and progress.

Hubert L. Carter, who was president of the new corporation, and will continue in the same capacity in the new one, represents the third generation of the family in the paper business and has the experience and background to assure a perpetuation of the same sound progressive policies which have controlled Carter, Rice & Co. since its inception. Mr. Carter is also president of the Boston Paper Trade Association, in which Mr. Esty is active. The association of these two men with kindred ideas in trade organization work has brought about a very natural desire to become more closely allied in their busines activities. The very rapid growth and success of the Esty Paper Company under Mr. Esty's direction assures to the new organization a manager who is aggressively modern.

Carter Rice Building Remodeled

In preparation for the merger the Carter Rice building has been remodelled, providing better facilities for handling merchandise and the conduct of the business.

The new corporation will retain all that is good in policies and practices and a continuation of the constructive programs which have been very similar in both companies and can be brought more towards complete fruition under unified management.



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947 E. Fourth St.,
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Mailliard & Schmiedell,
Colman Bldg.,
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Mailliard & Schmiedell,
Board of Trade Bldg.,
Portland, Oregon

Homer D. Butts,
701 Keenan Bldg.,
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August Hoffmann,
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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Port Huron, Mich.—The Dennison Manufacturing Company, Framingham, Mass., manufacturer of crepe paper specialties, paper novelties, etc., is said to be considering an expansion and improvement program at its branch mill at Port Huron, comprising former local plant of the Dunn Sulphite Paper Company, the work to include additional buildings and installation of new equipment for considerable increase in present output. It is understood that details will be arranged at an early date. Estimated cost not announced.

Charlotte, N. C.—The Carolina Paper Company is planning the construction of a new plant unit on Bruns Avenue, to be one-story, 100x300 feet, primarily for storage and distributing service, reported to cost close to $90,000, with equipment.

Philadelphia, Pa.—The Wyoming Valley Paper Mill, Northumberland, N. H., has leased space in the Bailey warehouse group at Delaware avenue and South street, Philadelphia, for local mill branch for storage and distributing service. The lease is for a term of years. The company will occupy at once.

Long Island City, N. Y.—Jaffe Brothers, 1165 Forty-eighth street, Brooklyn, N. Y., paper goods, are reported to be planning construction of a factory and distributing plant at Hulst street and Foster avenue, Long Island City, where a site 100x150 feet, has been selected. It is purposed to engage an architect to prepare detailed plans at an early date. Estimates of cost have not been announced.

New Haven, Conn.—The New Haven Pulp and Board Company, East street, has awarded a general contract to the H. Wales Lines Company, 134 State street, Meriden, Conn., for a new addition to boiler plant at its mill, to be one-story, 31x63 feet, reported to cost close to $48,000, with equipment. A permit has been issued and work will be placed under way at once. Westcott & Mapes, 139 Orange street, New Haven, are architects and engineers, and will supervise construction. It is understood that equipment purchases will be made through last noted office.

Fairmount, Ind.—The Superior Paper Products Company, Fairmount, is said to be planning the rebuilding of portion of plant recently destroyed by fire with loss reported at close to $100,000, including equipment and stock. Reconstruction will approximate a like sum.

Pittsburgh, Pa.—The Whitaker Paper Company, 101 Ninth street, closed bids on November 29, for its proposed new plant unit on property lately acquired on Beaver avenue, and will make contract award at an early date. The structure will be one-story, designed for storage and distributing service, and estimated to cost close to $200,000, with equipment. Present plant will be removed to the new location. R. Maurice Trimble, Commonwealth Annex, is architect. B. M. Johnson is vice-president and general manager.

Cincinnati, Ohio—The Chatfield Paper Corporation, recently organized by William H. Chatfield, Cincinnati, and associates, plans early operation of local plant for manufacture of paper goods. The company is capitalized at 10,000 shares of stock, no par value. W. C. McLaughlin, Cincinnati, is also interested in the new organization.

New York, N. Y.—The General Envelope Company, 32 West 22nd street, has leased space in the building at 43 W. 24th street, and will occupy for expansion. Possession will be taken at once.

Fitchburg, Mass.—Crocker, Burbank & Co., Westminster street, have work under way on a new one-story addition, recently reported in these columns, for storage and distributing service, and purpose to have the building ready for occupancy at an early date. The company is also making alterations and improvements in its Mills Nos. 7 and 8. Entire program is reported to cost approximately $45,000.

Big Island, Va.—Milton E. Marcuse, president of the Bedford Pulp and Paper Company, Big Island, is at the head of a project to construct and operate a hydro-electric generating plant on the James River, near Snowden, about four miles from the paper mill. A company has been formed under the name of the Rosecliff Development Corporation, headed by Mr. Marcuse, to carry out the project, and it is understood that the Bedford paper mill will secure power from this source when the plant is completed. The initial development will provide for a capacity of 10,000 hp.; a power dam will be built, and transmission line. Contracts have been awarded for certain primary equipment for the project, including water wheels to James Leffel & Co., Springfield, Ohio, covering five units, each with rating of 2,600 hp.; and to the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., for generating and auxiliary machinery. Other awards for miscellaneous equipment will be placed in the near future. A contract for the power dam has been given to Rinehart & Dennis, Charlottesville, Va. The entire project is reported to cost in excess of $350,000. I. J. Marcuse, vice-president of the Bedford company, is also identified with the new Rosecliff development organization.

St. Joseph, Mich.—The Mullen Paper Mill Corporation, Union Bank Building, St. Joseph, recently organized with a capital of 60,000 shares of stock by Victor V. Troyer, Constantine, Mich., and associates, is said to be planning the early operation of a mill in this section for the manufacture of a line of paper products. Edward F. Dee and F. R. K. Garmany, both of Detroit, Mich., are interested in the new organization.

Newark, N. J.—The building now occupied by the Specialty Paper Box Company, 73-77 Hudson street, has been sold to Foote, Pierson & Co., 160 Duane street, New York, manufacturer of electrical apparatus, who will occupy as soon as property is vacated by the Specialty company, which will establish a new plant at East Newark, as recently reported in these columns. The present factory will be removed to the new location, and additional machinery provided for increase in present output. Harry Engle is president.

Oakland, Cal.—The Sunset-McKee Sales Book Company, manufacturer of paper goods, will proceed with construction of its proposed new factory on Livingston street, near Cotton street, to be one-story, 160x200 feet, reported to cost about $70,000, with equipment. It is purposed to have the structure ready for occu-

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pancy at an early date. General contract has been let to the Austin Company, 1924 Broadway, Oakland. Ellison & Russell, Pacific Building, San Francisco, are architects and engineers.

Toronto, Ont.—The Canada Pad and Paper Company, Toronto, has plans under way for the erection of a new local plant, reported to cost in excess of $125,000, with equipment. It is expected to ask bids on general contract at an early date. N. A. Armstrong & Co., Toronto, are architects.

Howe Sound, B. C.—In connection with proposed new pulp mill and lumber plant at Howe Sound, the Kraft Company, Ltd., Vancouver, B. C., has awarded a contract to the Vancouver Pile Driving and Contracting Company, Vancouver, for foundations for the initial units, as well as for a lumber assembling wharf. Work will be placed under way at once. It is purposed to award contract for superstructures at an early date. The entire project is estimated to cost close to $2,000,000, with machinery.

Rouen, France—Plans are under way by a French company for the construction of a new paper mill in the vicinity of Rouen, for news print production. It will have an initial capacity of about 3,000 tons per month, and is estimated to cost close to $2,000,000, with machinery. Several buildings will be erected, in addition to paper-making unit and pulp mill. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, D. C., reference—Great Britain No. 76089.

New Companies, Etc.

Brooklyn, N. Y.—The Sunrise Paper Company, Inc., has been incorporated under state laws with a capital of $10,000, to manufacture and deal in paper goods. The incorporators are David Schwaber and Conrad Cassella, 176 Prospect street, Brooklyn.

Kalamazoo, Mich.—The Paper Products Manufacturing Company, Kalamazoo, has filed notice of increase in capital from $30,000 to $75,000, for general expansion.

Benton Harbor, Mich.—The Vawter Manifold Company has been incorporated with a capital of 48,000 shares of stock, no par value, to manufacture paper goods for office and commercial service, and kindred products. The incorporators are George H. Vawter and William A. Vawter, II, North Shore drive, Benton Harbor. Last noted is company representative.

Pittsburgh, Pa.—The Western Pennsylvania Paper Company, Pittsburgh, has filed notice of company dissolution under state laws. Reed, Smith, Shaw & McClay, Union Trust Building, attorneys, represent the company.

Detroit, Mich.—The Automotive Panel Board Corporation, Sandusky, Ohio, has filed notice to operate in Michigan, with capital of 35,000 shares of stock, no par value, to manufacture paperboard products of various kinds. The company will be represented by D. E. Hokin, 1475 Boston Boulevard, Detroit.

New Warehouse For A. P. W. Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 1, 1928.—Construction of a large new warehouse by the A. P. W. Paper Company on North Broadway has been started and company officials expect to have the new structure ready for use about January 1. The new addition is of concrete and reinforced steel construction similar to the storage plant completed last summer adjoining the firm's plant. Approximately 65,000 square feet of additional space will be available with the new building in operation. Several hundred workmen are employed on pushing the new project to completion. Work on the mammoth new $1,250,000 plant unit has been virtually completed and the company expects to start operation in the structure early in the coming new year. Plans for equipping the new plant are now under way and this work will be started within the next few weeks. The company is maintaining day and night shifts in its Broadway plant due to the increasing volume of orders with indications that these schedules will be effective for some time to come. Many additional workers have been taken on by the firm.

Lacy Addresses Dayton Industrial Association

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, November 30, 1928.—H. J. Lacy, of Indianapolis, president of the United States Corrugated Fiber Box Company, which has a factory in this city, was the principal guest speaker at the dinner meeting of the Dayton Industrial Association this week at the Van Cleve Hotel. The meeting was held Wednesday night and proved of deep interest to all members. Mr. Lacy proved to be an interesting speaker.

The association was responsible for interesting the United States Corrugated Fiber Box Company of Indianapolis to build a plant in this city. Although the branch has been established is working over a little less than a year, remarkable strides have been taken by the concern and the location of the plant in this city has brought the company a considerable increase in business, Mr. Lacy stated. The factory is modern in every detail and is located at the Baltimore and Ohio railroad and Royal street, West Dayton.

Other guests at the meeting were H. J. Hauser, Indianapolis, general sales manager of the United States Corrugated Fiber Box Company; H. J. Lacy, Jr., assistant sales manager, and B. L. True, Dayton sales manager.

Howard Marston, general manager of the Mercantile Corporation, which will soon yield the contract for furnishing stamped Government envelopes and newspaper wrappings to the International Envelope Company, and Frank Hill Smith, contractor and builder of mills and factories, were hospitable hosts to association members.

Conklingville Reservoir Assessments

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., December 1, 1928.—At the annual meeting of the Warren County Board of Supervisors a resolution was adopted providing for the collection by tax collectors of the fourth installment of the assessment for the cost of construction of the Conklingville Reservoir. Prominent paper manufacturing firms of Northern New York are assessed for the major part of the project, which is being rushed to completion. The assessments are as follows:

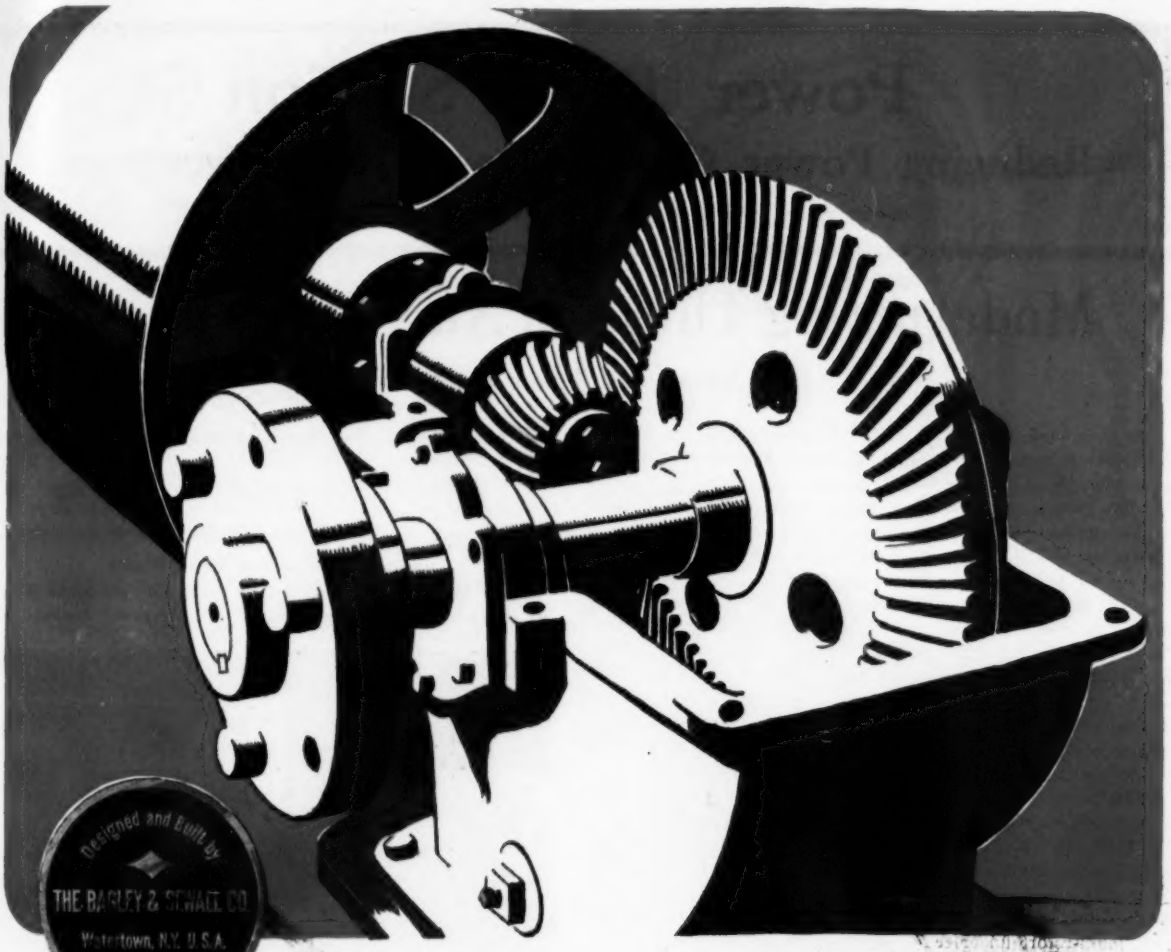
Finch, Pruyn and Company, Glens Falls, $15,920.04; Moreau Manufacturing Company, Queensbury, $607.63; International Paper Company, Queensbury, $42,412.92; International Paper Company, Luzerne, $962.09; New York Power and Light Corporation, $5,782.66; Warren Curtis Manufacturing Company, $389.90; International Paper Company, $6,213.07.

Assessments against manufacturing firms in Washington county are as follows: International Paper Company, Fort Edward, $1,498.98; Fort Miller Pulp and Paper Company, $4,071.15; Union Bag and Paper Company, $6.602.97 for one plant and $27,039.76 for another.

Union Made Paper Monopoly Motion

[FROM OUR REGULAR CORRESPONDENT]

UTICA, N. Y., December 1, 1928.—The Federal Government made a motion yesterday before Federal Judge Frank H. Bryant to strike out affirmative defenses set forth by defendants in their answer to the suit brought to break up an alleged monopoly in union made paper. Judge Bryant reserved decision. The defendants especially concerned are the Alden Paper Company, of Holyoke, Mass., and William R. Smith, Frank P. Barry and Matthew Burns, of Albany, heads of the International Brotherhood of Papermakers at Albany. The government charges that they conspired with the Alden company to monopolize the interstate trade in union made paper by requiring all manufacturers to make an arrangement through the Alden Co. by which the firm expected a commission even though it did not make or handle the paper.



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Watertown, N.Y.

Power Plant Section

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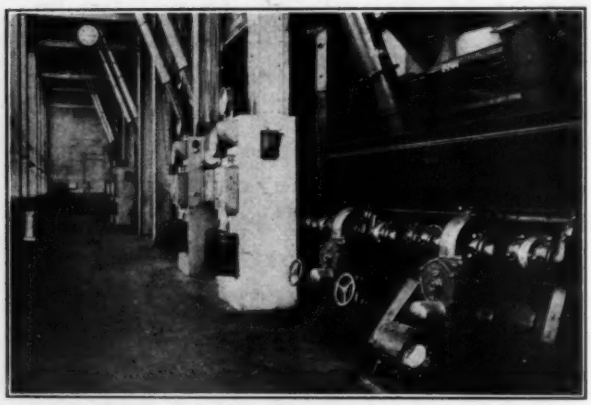
Modernizing The Mill And Power Plant

Advance in Stoker Practice

The continued activity of certain Wisconsin mills, in face of the growing scarcity of cheap local wood pulp, is attributed in large part, by an organization of world-wide repute, to the fact that the modern stoker very materially reduces power and steam costs in the fuel burning plant. These are the mills which today are making less and less cheap wood pulp paper and more and more of the costlier grades of rag paper, the production of which, incidentally, requires more steam than essential in the making of wood pulp paper. In substantiation, the experience of the Gilbert Paper Company, which is only one among many, is cited. Here, the substitution of advanced practice in stoker firing for hand firing of boilers has enabled the power plant to carry from 150 to 200 kilowatt more electrical load, produce ample steam for increased process work requirements and burn something like ten tons less coal each day. In short, a total annual saving of about $110,000.00 is realized at this plant, as the result of an investment of approximately $300,000.00 in modern stoking equipment.

The installation consists of three 7-retort underfeed stokers serving as many 700 horsepower boilers, driven by compact and highly efficient turbine drives, and is quite typical of a number of others in this same general center of paper making activity, where many multi-retort underfeed stokers are firing numerous boilers of from 400 horsepower to more than double such normal boiler capacity rating. In other instances, in Wisconsin and elsewhere,



Courtesy: Westinghouse Electric & Mfg. Co.

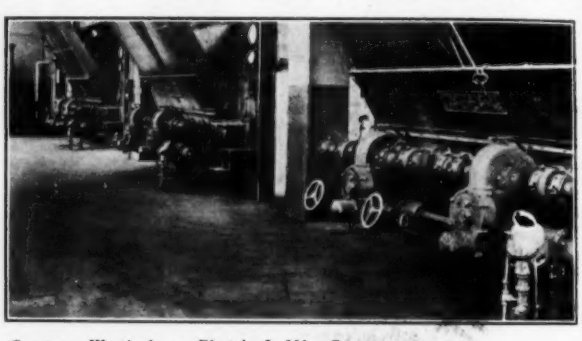
FIG. 1

Four 819 hp. Boilers Fired by 7-Retort Underfeed Stokers.—Consolidated Water Power & Paper Co.

single retort underfeed stokers are employed for smaller boilers. In other sections of the country, in New York and generally in the eastern states, as well as in many of the central states, more single-retort stoker installations, also of modern type, are encountered than those of multi-retort construction, and also quite a number of chain-grate stokers which are giving highly satisfactory service, handling small anthracite and bituminous coals. This demonstrates that not only has the mill which may be contemplating the adoption of stoker firing a wide range of choice in equipment selection, but that marked and substantial progress has been made in stoker design and construction generally.

Efficiency of Stoker Fired Plants

Stoker fired plants where proper attention has been given to the selection and proportioning of the furnace elements have



Courtesy: Westinghouse Electric & Mfg. Co.

FIG. 2

Modern Underfeed Stokers at the Gilbert Paper Co. Save $110,000.00 Annually.

realized overall efficiencies as high as 92.7 per cent. Normal operation at 175 to 400 per cent. of boiler rating is now quite common practice. Peak loads of better than 460 per cent. have been carried for eleven consecutive hours in a representative plant in which a maximum peak of 710 per cent. was attained. In another plant, 350 per cent. of boiler rating was maintained continuously during working hours for a period of three months. The most striking characteristic of modern stoker practice is, however, its truly remarkable flexibility. At one plant, a 650-horsepower boiler was brought from a banked condition to steaming at 250 per cent. of rating in the almost incredibly short span of 1 minute and 30 seconds, and held at that rating.

These brief general notes clearly indicate the marked progress consummated in stoker development and are made simply to focus attention on the fact that modern stokers can be counted upon to meet severe firing demands in a very satisfactory manner, husbanding the coal pile, developing high furnace and boiler efficiencies and displaying extreme flexibility in operation. Modern stoker firing, in fact, compares most favorable in efficiency with any other combustion system. This statement is made advisedly and with full appreciation of the high efficiencies attained with pulverized fuel systems, a topic which is scheduled for later discussion in these columns.

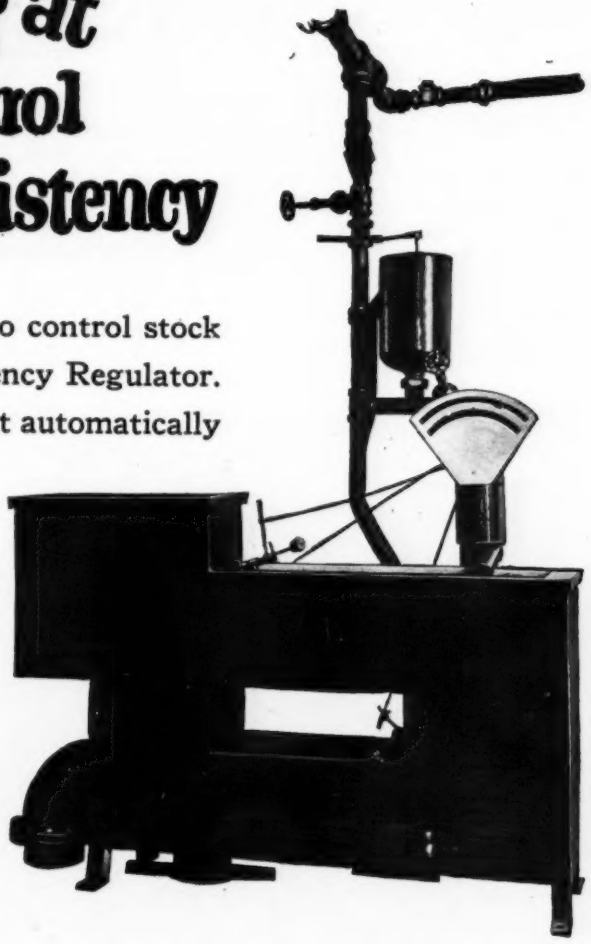
With the refinements incorporated in the modern stoker, the question of stokers versus pulverized fuel is open to debate from

As easy as looking at a gauge control your stock consistency

That's all the operation effort required to control stock density with the DeZurik Stock Consistency Regulator. It not only indicates the stock density, but automatically and instantly regulates it so that all stock is the weight required for a particular run. Water is added instantly if the stock being furnished is not the correct density.

The DeZurik Stock Consistency Regulator operates instantaneously — without power of any kind. The exclusive patented features of design and construction make possible this instant operation.

This is a stock consistency regulator that warrants your careful investigation now. Let us send you complete information.



The DeZurik Stock Consistency Regulator has its own constant water head control—a decided advantage over all other types of regulators. Varying water pressures in a mill make no difference in its operation.

—and the exclusive features of the DeZurik Stock Consistency Regulator are patented—U. S. Patent No. 1,669,412.

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue

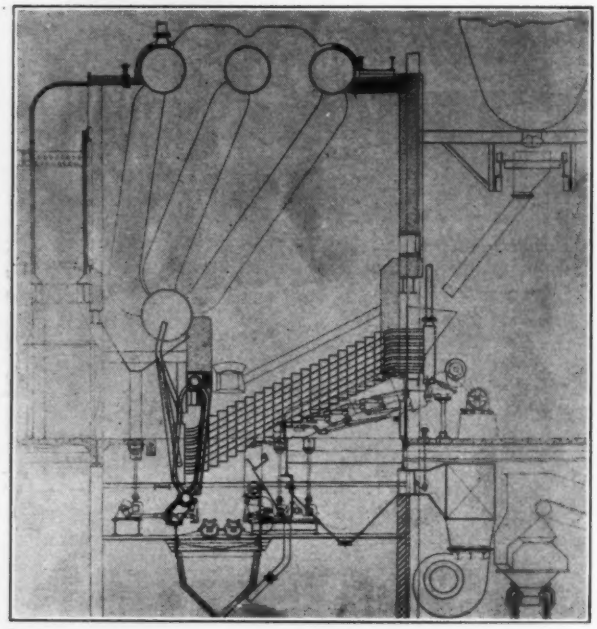
Western Manufacturing and Sales Division: Smith and Valley Iron Works Co., Portland, Oregon

many angles for each contemplated installation, in modernizing the power plant. More and more is the need of exercising expert judgment in the selection of the combustion system, if power, steam and total production costs are to be reduced so far as possible, for the fuel burden, be it for coal, oil or gas, is a major expense in the production of paper.

Savings Effected

This will be brought out quite conclusively in the account of savings effected in a plant where stokers have been substituted for an expensive pulverized fuel system previously installed. This presentation is made, not to discount in any way the worth of a pulverized coal installation, but rather to show how really important is the selection of the combustion system best suited to the particular conditions encountered, whatever they may be, its respect to the characteristics of the coal supply and all other influencing factors.

In the discussion on stokers published in these pages on November 10, 1927, the various varieties were described briefly and in



Courtesy: American Engineering Co.

FIG. 3

Advanced Practice in Underfeed Stoking Showing Arrangement of Water Cooled Walls.—Rhinelander Paper Co.

that published April 19, 1928, stress was placed on the installation of the smaller varieties, hand operated and semi-automatic stokers Suggestions were made as to the logical fields for the respective classes of stokers, showing when and under what conditions the installation of hand operated apparatus should pay, showing the same for semi-automatic devices and for the fully automatic variety of stoker. As was anticipated, some objections were raised to even such an elastic classification, the advocates of automatic stokers claiming with reason that fully automatic stokers would pay in the field suggested for semi-automatic devices. This is unquestionably true in many instances, the trend ever being toward automatic operation of stoker firing. The power plant which even a few years ago may have been justified in hesitating to install even a semi-automatic system, finds that now it is confronted with the need of installing fully automatic stoking devices. The present discussion, consequently, will deal exclusively with fully automatic systems and will attempt by the citation of specific benefits realized in individual installations, together, in some instances, with opinions advanced by mill officials, to demonstrate the profitable nature of modern stokers in reducing the overall cost of pulp and paper production.

Refinements Incorporated

Before taking up certain examples of profitable stoker installations, however, it will be well to point out some of the refinements incorporated in modern stoker design, construction and operation. The object of this is twofold: 1st., to show approved developments and, what is of even greater importance, the intimate part played by the stoker in the progress made toward realization of greater combustion efficiencies; and 2nd., to focus attention upon the need of every progressive mill keeping posted in stoker development.

A stoker which has given satisfaction for a number of years, unquestionably saving heavy annual expenditures for fuel during the period, a good reliable device, may, in view of conditions existing today and of changes in boiler practices, have to give way to a more modern one. This is no reflection upon the older stoker, any more than it is upon the past use of a semi-automatic or hand operated stoker by a mill which now finds it necessary to install an automatic device in order to realize the low power costs of competing mills. It merely shows the irresistable advance of progress. The older stoker, the semi-automatic device and the hand operated apparatus have one and all well justified their installation. They have earned their keep, but still, while much more economical than less efficient stoking systems, should be replaced by more modern equipment. No mill, satisfactory as it may believe its stoking system to be, can afford not to give continuous consideration to its fuel burning system with the view of keeping it in the very front rank.

Advance in Stoker and Furnace Practice

The trend in the development of stoker fired furnaces has unquestionably been in the direction of more intensive application of water cooled walls in one form or another, most of the large new furnaces now being provided with water cooled walls, but this is not to be construed as establishing the only approved procedure. Great progress has been made also in the direction of air cooling refractory walls and in the production of high temperature refactories. Likewise, progress has been made in the insulation of water cooled walls, etc., exerting much influence on the economies resulting from the use of such walls, whether the tubes are exposed to the direct furnace heat or are shielded from the hot gases.

Such considerations may appear somewhat foreign to stoker development and operation, but in reality they are very intimately related, as is also the practice of employing preheated air for combustion. In the latter case, the relationship may be a little more obvious, for it is well appreciated that marked savings are made possible through the use of preheated air. Hot air occupies much more space than air at normal temperature, so necessitating the redesign of tuyeres and air distributing boxes. There are installations of stokers now operating with air preheated to 600 degress Fahrenheit.

Stoker Maintenance Advanced

Considerable advance has also been made quite generally in decreasing what is aptly designated "stoker maintenance," reducing the cost of stoker replacement parts and simplifying the installation of such parts when that is necessary. This has been quite universal and in the case of one prominent stoker manufacturer reflects a decreased maintenance burden, including labor and materials, amounting to 46 per cent., *i.e.*, when comparing the maintenance of the modern stoker with that of older varieties. This has been effected by more skillful designing in the proportion of heat absorbing surface to heat radiating surface of the parts and by making those parts which are subject to possible replacement of lighter weight and more easily removable.

There has also been a tendency to install longer stokers than

There's always a Gamble

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Noble & Wood Jordan Plugs are designed and built to eliminate the remotest chance of shake. Their super-alloy steel or Hy-Ten-Sl bronze bars bear solidly on the whole length of the plug body and are firmly anchored in perfectly machined dovetail grooves or by steel bands.

Filler bars are of clear, sound selected oak or maple, seasoned in our own kilns and trimmed to fit tight and true. Bars and woods are securely locked by a patented steel disc nose at the small end, where abuse and wear are greatest.

No degree of vibration can force the bars loose. The absence of play and loose fits means perfect control of Jordan refinement and added life to the bars and the Jordan itself.

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NOBLE & WOOD
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Hoosick Falls New York

formerly and by so doing to secure somewhat better furnace efficiency. This would appear to be a most logical step, within limits, for neither the front nor the extreme rear zones of the furnace bed can be as effective in steam generation as the intermediate zones where the combustion is most active. Lengthening out the stoker tends to increase the mean zone steaming efficiency of the boiler.

A goodly number of other details of refinement, by one or another of the leading stoker manufacturers, could be mentioned, all tending to an increase in efficiency and capacity distinctive of the modern stoker, but this seems hardly necessary. It is of interest to note, however, what has been the effect of the constant increase in stoker efficiency and capacity upon the initial cost and operating cost of the modern stoker. This is quite illuminating, for while the initial cost may have increased somewhat during recent years, since 1910, the capacity of the respective stokers has increased to a very much greater extent. Where first costs have increased six or seven units, corresponding fuel burning capacities have increased from fourteen to twenty units. Resolved to dollar and cent measures, with coal commanding $5.00 a short ton, this means a coal saving valued at from $70.00 to $75.00 per year on an assumed generation of a million pounds of steam a year, or somewhat better.

Betterment of 40 Per Cent. Attained

Turning now to a consideration of individual installations of modern stoking systems, one which is particularly noteworthy, in that it well exemplifies the advisability of exercising extreme care in the selection of a combustion system, is that at the Noblesville (Ind.) plant of Ball Brothers Company. Prior to the installation of a modern stoker, a pulverized coal combustion system was employed at this plant and this, it has turned out, was not the best selection for the plant. The outcome has been that two more of the modern stokers have been purchased and are being erected at the present time, converting the power house from one operated on pulverized fuel to one employing modern coal stoking methods.

In justice to the powered coal installation, it is only fair to state that its failure was due to the unsuitability of the coal supply, rather than to any defects in the system. The fuel consisted of Indiana coal high in moisture content and it was found that the pulverizer was unable, as a result, to give proper fineness. The lack of a sufficient proportion of fine coal particles was responsible for incomplete combustion, for lowering the efficiency of the boiler and establishing what was considered an abnormally high coal rate per ton of paper produced, from 2,500 to 2,800 pounds of coal per ton of paper.

The stoker responsible for this upheaval is an 8-retort underfeed one and was assigned to the stoking of an efficient 796-horsepower boiler with a furnace protected by 1,528 square feet of water walls and served by a tubular preheater containing 10,000 square feet of effective heating surface and an economizer with 2,240 square feet of reclaiming surface. Under such conditions, the stokered boiler has shown great improvement in respect to coal consumed per ton of paper produced, during the past month of August the actual stoked coal per ton of paper having been less than 1,600 pounds. This means a saving of between $20,000.00 and $25,000.00 a year which is attributable very largely to the installation of the modern stoker equipment.

The two other stokers, those purchased on the strength of this gratifying record, are of the 4-retort underfeed type, being designed for use with somewhat smaller boilers, and are being installed under two new 507-horsepower units, furnished with forced and induced draft fans, an efficient preheater and a quantity of essential duct work and with the furnaces protected by side and rear water walls. The total cost of this complete 1,014 horsepower installation, including the expenditures for underfeed crusherstokers, boilers and all auxiliaries, erected and ready to run will be a matter of $82,000.00. The original pulverized fuel system installation, including the cost of the 796-horsepower boiler, pulverizer, economizer, preheater, forced and induced draft fans and necessary duct work, the entire installation as was, entailed an investment of about $100,000.00.

These two investments, the one of $100,000.00 for the system already displaced by the 7-retort underfeed stoker now in operation and the one of $82,000.00 for the two additional 507 horsepower stoker fired boiler units, throw some very pertinent light upon the economic importance of giving the selection of proper combustion system most careful consideration. In one sentence, an investment of 18 per cent. less than that entailed for the original pulverized fuel system will provide 27½ per cent. greater steam generating capacity. In addition, if the new 1,014 horsepower installation proves as economical and as efficient as the results secured from the first 796-horsepower stoker installation promise, effecting a conservation of coal, as compared to past records with a pulverized fuel system, of 40 per cent., or thereabouts, the expenditure of about $95.00 a day, $25,000.00 to $32,000.00 a year, essential for the additional capacity had the powdered coal combustion system been retained and expanded, will have been avoided.

Modern Canadian Boiler House

In the light of such striking figures, it is interesting to note that a quite comparable installation was made a year or more ago at the Anglo-Canadian Pulp and Paper Mills, Ltd., where a modern underfeed stoker system handling Dominion bituminous slack running 13,300 B. t. u. per pound as fired is in service. The Indiana coal burned at the Ball Brothers plant averages 11,300 B. t. u. per pound as fired.

While no operating costs are available, the similarity of the Canadian installation to that being set-up at the Ball Brothers plant, though on a somewhat larger scale, is so close that a brief reference to the chief details and characteristics of the boiler house is quite pertinent. The lack of figures is to be regretted but it will take little imagination to place a high value on the judgment displayed by the Canadian concern in its selection of an economical combustion system.

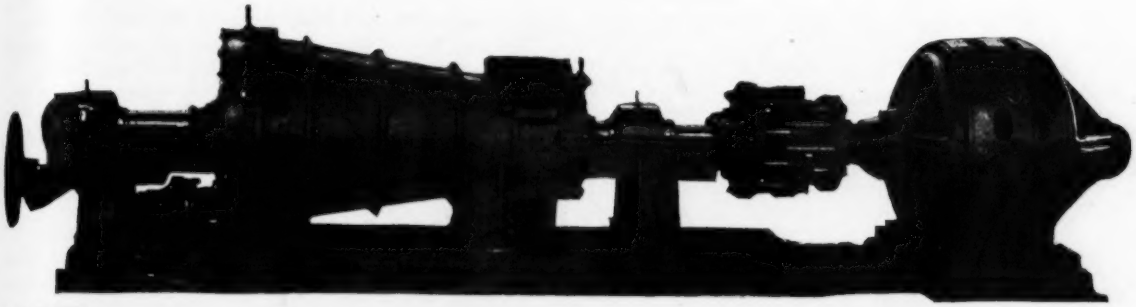
Three 243-horsepower water tube boilers, having close to 500 square feet of total water wall area, preheater surface in excess of 11,000 square feet employing preheated air at a temperature of 350 degrees Fahrenheit when operated at 330 per cent. of rating, are fired with 9-retort underfeed crusher stokers. These large stokers have a projected grate area of about 290 square feet each and are operated by variable speed hydraulic transmissions, the crusher section of the stokers being driven by a pump and hydraulic cylinders. The normal load at this point is about 200 per cent, of the boiler battery rating and the peak load 330 per cent. of rating.

Value of Water Cooled Walls

It will be noted that in both these installations the furnaces are protected by water cooled walls, practice which is in line with the trend so apparent in the progressive and highly efficiently operated power plants of the more prominent electric public utilities of the country. For this reason, a brief summary of the results secured during a test at The Northwest Paper Company of a water tube boiler and underfeed stoker, the furnace protected with side and bridge water cooled walls, will be of interest.

No economizer or preheater were attached to this unit, the boiler feed being at 86 degrees only and the air supply to the stoker at 78 degrees Fahrenheit. In spite of such handicaps, a combined boiler and superheater efficiency of 80.3 per cent. was attained when driving the boiler at 300 per cent. of rating, indicating very conclusively that proper water cooling of the stoker furnace tends to high efficiencies at high ratings.

At the pulp mill of the Brown Corporation, La Tuque, Quebec, a battery of two boilers furnished with water walls and fired by modern underfeed stokers has been in service approximately a year and is giving a very satisfactory account of itself. The



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(1) Timken Roller Bearings, both radial and thrust, are mounted on taper-bored sleeves.

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THE EMERSON MANUFACTURING CO. Lawrence, Mass.

stokers have handled the troublesome Dominion coal, high in iron and sulphur content, so successfully that an operating efficiency of approximately 75 per cent. has been maintained, which is indicative of a coal saving of 10 per cent., as compared with results before the installation, and an increase in boiler capacity of 100 per cent. of rating.

Commenting on this installation, B. Bjourlund, Superintendent of the plant, states: "The front water cooled wall has been especially valuable, as it has eliminated the front wall corrosion, which ordinarily occurred with Dominion coal."

Assuring Profitable Mill Operation

It is information such as this, quite as much as it is the more spectacular savings effected through the use of modern stoker systems, effective furnace wall protection, preheated air supply, adequate insulation and other refinements this implies, in individual plants, which should command the interested consideration of the progressive mill management. It is only by taking heed of details in progress made in stoker practices, in pulverized fuel combustion methods and in any and all other combustion systems, as well as investigating the overall results, that the power plant can be made to deliver power and steam at the low rates which go so far toward toward assuring profitable mill operation.

The steam power plant burden is a major one in the pulp and paper industries and should command far more attention than it is usually accorded. To exercise the proper supervision, it is highly important that the mills of the dual industries not only follow closely all activities in modernizing their own power plants, but that all developments of merit in the practices of the large electric public utility plants be scrutinized with care. The very existence of these latter plants depends upon generating power, also steam, at the very lowest attainable unit rates and under far less favorable conditions of plant load factor than can be maintained in the efficiently operated power plant serving the paper making industries. It is a wise policy which advocates learning from the experience of others, as well as from solving one's own more distinctly individual problems.

Pulpwood Transportation Costs

A recent study conducted by the Woodlands Section of the American Paper and Pulp Association indicates that the cost of transporting pulpwood from the forest to the mill makes up about one quarter of the total f.o.b. mill cost of wood. The average transportation cost for all pulpwood in the United States amounts to $3.23 per cord. The regional costs vary from an average of about $2.00 per cord in the south and west to $6.50 and $8.00 per cord in New York and Pennsylvania. In Maine and the Lake States costs average around $3.50 per cord.

The regional variation in average costs account to a large extent for the variation in the prices of pulpwood. In the regions which have ample pulpwood supplies, long distonce shipment of pulpwood is unnecessary and cost may be low. In the older pulpwood regions, however, local pulpwood depletion has necessitated long pulpwood hauls with the results that costs have increased constantly.

The present high average transportation costs in the old producing regions indicate the rapidity with which costs increase. In 1900 most mills in these regions used locally grown wood. In a period of three decades, costs have arisen from the level based upon local wood, similar to that which exists in the south and west today, to a high level which is about three times the cost of local wood.

The necessity for shipping pulpwood increasingly long distances can be obviated only by continual use of forest land, which means forestry. If nearby forest lands are kept in continuous production, the savings in transportation will offset in a large way the costs of forestry. But if forest lands are not used for successive pulpwoods crops, a rapid increase in transportation costs is inevitable.

Connecticut Valley Superintendents Meet

HOLYOKE, Mass., November 30, 1928.—The annual meeting of the Connecticut Valley Division Pulp and Paper Mills Superintendents Association, was held in the room of the Division in the Lincoln Building Saturday evening, November 24, and a record attendance for an annual meeting was obtained. The report of the committee on new quarters was approved and a vote of thanks given to Messrs. White, Reardon, and Kennedy, comprising the committee.

It was voted to authorize John J. White, as chairman of the committee on a joint meeting of the superintendents, printing executives and kindred industries, to proceed with arrangements for a meeting at the Hotel Nonotuck during January.

Resolutions were adopted on the death of the late Edward F. Driscoll and these resolutions, as well as previous ones, will be framed and placed permanently in the headquarters of the association in the Lincoln Building.

Roger Mc Corkindale, chairman of the nominating committee, reported the following list of officers for the coming year and on motion, the secretary cast one ballot for the list as presented. The following are the officers elected:

John J. White, chairman; Matthew V. Horgan, 1st vice chairman; Lewis E. Weiser, second vice chairman; Arthur B. C. Drew, 3rd vice chairman; Charles N. Mooney, treasurer; Andrew T. Barnett, secretary; and for the Board of Governors, the above officers and: Wm. B. Clements, Thos. T. Rogan, Chas. D. Higgins, H. C. Parsons, S. W. Smith, E. W. Peppard, Leon M. Yoerg, Roger Mc Corkindale, Edwin H. Gibbons, John Leishman, Theodore M. Pomeroy, Thomas Duff, Frank S. Mc Donnell, Wm. L. Nixon, Joseph Bario, W. H. Croft, Joseph A. Moses, George Raynor, A. J. Loman and Wm. E. Hogan.

Chairman Mc Corkindale called attention to the fact that the nominating committee had made an effort to recognize all sections where the division had members and had succeeded pretty well, he also directed the attention of the members to the fact that it is not generally known that the Division functions in four States, Massachusetts, Vermont, Rhode Island and Connecticut.

Discussions on matters of interest to the trade followed; after which a buffet luncheon was enjoyed and the meeting adjourned, with expressions from those present that it was the best ever and that new life had been injected into an already live division.

Wm. B. Clements, chairman for the past year, presided, and expressed his pleasure and gratitude to the members for their loyalty to him during his term.

Announcement will soon be made on the formation of the Super-Craftsman club with membership composed of the members of the Connecticut Valley superintendents and the Connecticut Valley printing craftsmen as active members and associate members will be welcomed from any kindred industry.

Ohio Safety Conference

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 3, 1928.—The All-Ohio Safety Conference held recently at Columbus, which was attended by many mill and factory representatives from this section, was productive of much good, according to manufacturers and business men in attendance.

E. F. Watson, consulting actuary, one of the chief speakers, asserted that "one of the most secure guarantees for permanent and effective safety engineering work in Ohio for the future is the statutory one per cent of the employers' workmen's compensation insurance premium provision in the compensation law, thereby making this work no longer dependent upon legislative appropriation."

He praised the solidarity of the workmen and employees back of the enforcement law and commended the merit rating system as a factor in accident prevention.

R. H. Sweetzer, of Middletown, spoke on "Safety as a Business Policy."

So far as most men know all cakes are made alike ~~~

The ingredients in all cakes are much the same. Yet two women using identical recipes will get different results. Even with specifications the same, the cakes are far from being alike.

Belts, too, made to the same specifications will differ widely in performance. So far as most men know they are all made alike. They should therefore, give equal service. But the experienced belt user, like the experienced cook, knows that something more than good raw materials is required.

Condor Belt—and all high grade belts—conform to strict specifications. Weights of duck and friction tests in two or more belts may be the same, but these cannot foretell their span of life.

In Condor Belt, the component parts are built for aging. They are steeled against Time. The factors are constant. In your own shop you will find the proof. Match Condor—belt for belt—and let the outcome form your opinion.

Like Condor Belt your satisfaction will endure.

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New York Trade Jottings

F. C. Clark, consulting engineer of the paper industry, has been in New York for several days.

* * *

Frank C. Ash, vice president and treasurer of the Oswego Falls Corporation, of Fulton, N. Y., was a recent visitor to New York City.

* * *

The regular weekly luncheon of the New York Division of the Salesmen's Association of the Paper Industry, took place on Monday, December 3 .

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, drove down to Washington for a week's stay, accompanied by the Honorable Honoré Mercier, Minister of Lands and Forests of Quebec, and Major J. A. Duchestel, manager of the Quebec Forest Industries Association.

* * *

Statement of Container Corporation of America and subsidiaries to New York Stock Exchange, as of September 30, 1928, shows total assets of $26,320,955 compared with $20,881,990 on December 31, 1927 and surplus of $1,528,708 against $1,058,803. Current assets amounted to $4,138,571 and current liabilities $907,621 as contrasted with $2,965,109 and $674,457 respectively, on December 31, 1927.

* * *

New York Stock Exchange has admitted to trading the common stock (voting trust certificates) of another outstanding industrial corporation on the Pacific Coast, the Crown Zellerbach Corporation, now the second largest paper manufacturer in the United States, with assets of more than $100,000,000. In the early part of this year is acquired Crown Willamette Paper Company, and, through it, control of Pacific Mills, Ltd., a prominent Canadian paper producer. Crown Zellerbach Corporation manufactures news print, sulphite and kraft wrapping paper, paper bags and a variety of other paper products. Recently is acquired a substantial interest in the Valve Bag Company of America, which has exclusive United States rights to manufacture and lease filling machines for lime and lime products and to manufacture patented valve bags for such products. Properties of the corporation, consisting of pulp and paper mills, converting plants, timberlands and hydro-electric power developments, are situated principally in Oregon, Washington and California, and in British Columbia. A subsidiary National Paper Products Co., owns plants in Carthage, N. Y.

Pulp and Paper Industry in Alaska

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 5, 1928.—Surveys by commercial companies awarded contracts in Alaska for the development of the pulp and paper industry are being carried forward and early construction of hydroelectric units is anticipated according to the annual report of the Governor of Alaska.

Engineers, the report stated, have estimated that the forests of Alaska can produce 1,300,000 tons of news print annually in perpetuity and there is available more than 500,000 undeveloped horse power within the reach of the timber supply.

Grove Hamblin Dead

[FROM OUR REGULAR CORRESPONDENT]

HUNTINGTON, Mass., December 4, 1928.—Grove Hamblin, 79, former superintendent of the H. B. May Paper Company, of Lee, and for thirty years connected with the Chester Paper Company of this town is dead here. He was born in Lee in 1849, coming to Huntington about 38 years ago. He leaves his wife, whom he married 68 years ago and one son, Charles E., with whom he lived. The funeral was held Tuesday afternoon and the body taken to Lee for burial.

Boston Paper Market in Good Condition

BOSTON, Mass., December 3, 1928—The condition of the paper market appears to be generally satisfactory. Some of the fine paper houses have been booking a good volume of orders. At the office of one firm it was stated that the company had had the best month during November since starting in business. The coarse paper market is firm and improving, with the number of orders increasing and the volume in these orders increasing also. One coarse paper man, however, says that fibre paper is "none too husky".

In the box board market a number of mills are reported to have taken orders up to the limit under the new price scale and are obliged to decline further business for the present. In a number of cases no orders are being solicited at the rate of $32.50 for filled news and $30 for chip. The majority of mills, according to reports in the trade, have enough work on hand to keep them in operation until January 1. Higher prices are expected to be in effect after the turn of the year.

Waste paper continues firm, and quiet. In bagging, manila rope, both foreign and domestic, have advanced to 4.00, with an upward tendency, from a previous quotation of 3.25 to 3.50, on account of an increased demand for manila paper. New and old domestic rags and foreign rags are said to be "rather stagnant".

The last three months have been productive of a good amount to twine business. Wholesalers regard very favorable the change in "trade customs" in regard to contracts for cotton twine. Formerly, buyers were guaranteed against decline in prices, but now, owing to the influence of the Cotton Institute, prices at the time the contract was made, hold good for delivery of the order.

Mill Service Committee Survey

A complete survey of all of the pulp and paper mills in the United States is to be undertaken to ascertain just what new equipment has been installed in each mill during the last year and to learn of the results produced by this new equipment. The survey will also include additions or improvements to old equipment.

This work will be carried on by the newly formed Superintendents Mill Service Committee of the American Pulp and Paper Mill Superintendents Association which was organized December 1 at a meeting in the Hotel Commodore, New York.

This meeting, which was continued Sunday, December 2, was attended by K. E. Terry, S. D. Warren Company, Cumberland Mills, Me., Chairman; Dr. C. A. Brautlecht, Head of the School of Chemical Engineering, University of Maine; John Schumaker, Champion Fibre Company, Canton, N. C.; Fred J. Rooney, Mill Manager, The Upson Company, Lockport, N. Y.; National Secretary R. L. Eminger, of Miamisburg, Ohio; and National President B. T. Larrabee, ex officio of S. D. Warren Company, Cumberland Mills, Me.

It is the plan of the committee to correlate the statements contributed by superintendents of pulp and paper mills throughout the country and then redistribute them to the entire membership of the Superintendents Association in the form of an annual report, which it is felt will keep not only the superintendents but the entire industry informed on current improvements and developments in pulp and paper manufacture in a manner that will render unnecessary similar and less comprehensive surveys by individual companies.

Walter M. Pratt Promoted

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 3, 1928.—Walter M. Pratt, of the Pratt Paper Company, Vice-Commander-in-Chief of the Military Order of the World War, has received promotion from Major to Lieutenant Colonel, Military Intelligence Reserve, U. S. A. Colonel Pratt has been assigned to the war plans and training branch of the General Staff, Washington, D. C.

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PAPER EXPORTS DECREASE

Exports of paper and paper products from the United States during September show a slight decrease in value as compared with August, and an increase of from $1,942,729 in September, 1927, to $2,098,810 in September, 1928, according to the Paper Division of the Department of Commerce.

Shipments of book paper and wrapping paper increased to some extent as compared with the same month a year ago; but these two items show a slight decrease as compared with the previous month of this year.

There was a decrease of 204,174 pounds in news print shipments compared with September, 1927, and at the same time a decrease of 743,000 pounds in shipments of this item under August of this year.

Exports of writing paper show a substantial increase over September, 1927, and a slight increase over the preceding month of this year.

Exports of surface-coated paper show an upward trend, September shipments exceeding those of September, 1927, by 1,010,305 pounds, and those of August, this year, by 37,899 pounds.

Shipments of boxboard show a considerable increase over both September of last year and August of this year; a considerable increase is shown in shipments of other classes of boards as compared with September, 1927, and a slight decrease as compared with August of the present year.

Papeteries showed a substantial decrease under September a year ago and a slight decrease under August, this year.

There was a considerable decrease in shipments of tissue and crepe paper as compared with both September, 1927, and August, 1928.

There was also a substantial decrease in exports of greaseproof and waterproof paper as compared with September, 1927, and a decrease of 47,305 pounds under August of this year.

Outgoing shipments of boxes and cartons show an increase of 1,045,144 pounds as compared with September, 1927, and an increase of 401,189 pounds as compared with August, the present year.

Exports of paper and paper products during September were valued at $2,098,810 an increase of $156,081 over September, 1927, and a decrease of $649,301 when compared with August, 1928.

Imports of paper and paper products into the United States during September, 1928, show a decrease of about $676,414 as compared with September, 1927, and $1,043,334 under August, 1928.

Imports of standard news print were 329,296,257 pounds, showing a slight decrease as compared with September, 1927, and August, this year. Incoming shipments of other paper and paper products show a slight increase in value as compared with September last year, the same applying also to imports of this item for August, this year.

Total paper and board imports during September were valued at $12,566,616 of which $11,149,232 represented 337,260,143 pounds of news print paper and $1,417,385 other paper and board receipts.

Statistics covering receipts of paper base stocks in comparison with August figures, shows a slight increase in the volume of pulpwood receipts and a slight decrease in the receipts of waste bagging, waste paper, etc., and old rope and all other paper stock. There was a considerable decrease in imports of rags for paper stock as compared with August.

Incoming shipments of wood pulp show a tonnage of 131,556, as compared with 133,104 tons in August of this year. The total value of paper base stocks during September is given as $10,192,816 as against $9,337,208 in September, 1927, and $10,231,295 in August this year.

INTEREST IN REFORESTATION GROWS

An increase of 146 per cent in the number of orders for trees for reforesting projects in four years gives some idea of the growth of the movement for the reforestation of idle, non-agricultural land in New York. During this year more than 3,600 individuals, communities, industrial concerns and organizations interested in conservation ordered trees from the state nurseries in lots ranging from a few thousand to several hundred thousand each. Figures compiled for Conservation Commissioner Alexander Macdonald at the close of the year's planting season show that there was an increase of 1,552,563 in the number of trees distributed from the state nurseries to individuals, municipalities, industrial concerns, schools and miscellaneous organizations as compared with the figures of 1927 which constituted the record prior to this year.

The figures for the above classification were as follows: Individuals, 11,181,000; municipalities, 3,362,000; industrial concerns, 1,561,000; schools, 184,000; miscellaneous organizations 1,129,000. The above figures represent an increase over last year of 645,000 trees for municipalities, 392,000 for miscellaneous organizations, and 697,000 for individual planters. The total number of tree orders for the year was 3,644, an increase of 475 over the 1927 total. In addition there were planted on state land including state institutions and parks 4,526,000 trees of all species. The demand for young trees for planting stock has increased so steadily that a further expansion of the state's nursery system became necessary this year. A new nursery was established at Horseheads, where fifty acres have been prepared for seed beds and transplants for the coming spring.

Three years ago the nursery capacity was increased from 10,000,000 in 1925 to 200,000,000 in 1926: The present inventory of the nurseries is over 100,000,000 or sufficient for a yearly output of from 30,000,000 to 35,000,000. In addition 150 acres of land in

the Saratoga Springs reservation has been made available for increasing the size of the Saratoga nursery. Much of the land in this nursery has been in continuous use for seven years and was overworked. Additional land was needed badly so that each year at least one-third of the ground area could be rested, cover cropped and the general soil condition improved. In order to permit the production of a high quality of planting stock the soil at all the nurseries must be continuously improved and this year's expansion will make this possible and still provide first class planting stock sufficient to permit an output of more than 30,000,000 trees.

Paper Mill Employment In October

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 5, 1928.—There was a very small falling off in employment in Paper and pulp mills in October as compared with September, while there was an increase in the pay rolls. There was also an increase in both employment and pay rolls in the paper box industry according to the Bureau of Labor Statistics, Department of Labor.

Reports were received from 216 pulp and paper mills who gave their September employment at 58,137 decreasing very slightly in October to 58,112. The pay rolls in these mills on the other hand increased from $1,534,385 in September to $1,581,411 in October an increase of 3.1 per cent.

The Bureau also received reports from 188 paper box factories who gave their September employment at 19,828, increasing in October to 20,855, an increase of 5.2 per cent. The pay rolls in these plants also increased from $449,197 in September to $480,538 in October an increase of 7 per cent.

News Print Agreement Effected in Europe

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 5, 1928.—A report from Commercial Attache William T. Daughtery, at Berlin, states that the impression seems to prevail in Germany that as a result of the meeting of international news print interests in Copenhagen in April, Canada will cease exporting news print to Europe while acquiring an even greater share than heretofore in the United States market. A market division arrangement on news print has been effected between Germany, Austria, Czechoslovakia, whereby Germany yields the Balkan market to the last two countries. German news print production during 1927 amounted to 516,000 metric tons of which 135,000 tons were exported and 382,000 tons consumed in the home market. Out of total exports, about 7,000 tons went to the Balkans.

Berst-Foster-Dixfield Plant Moved

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., November 24, 1928.—The Berst-Foster-Dixfield Company, New York City, has moved its branch factory from the Standard Paper Company, Kalamazoo, to the White Pigeon division of the Eddy Paper Corporation, where it will operate with at least 25 employees at the start. The concern makes paraffined paper boxes and will be supplied with raw stock by the Eddy Paper Corporation.

Union Bag's Pacific Coast Plant Nearly Ready

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., November 28, 1928.—Machinery is now being installed in the new building being erected for the Union Bag and Paper Company in Vancouver, Wash., adjoining the Columbia River Paper mills. The structure contains 50,000 feet of floor space and is costing $70,000. Operation, it is expected, will start shortly and will give employment to about 100 people.

Paper Industry Cooperates in Stream Improvement

Through the activities of its engineer, C. M. Baker, the American Paper and Pulp Association has developed cooperative programs with the officials in a number of states in regard to the improvement of streams with reference to pollution. This is consistent with the policies adopted by the association's committee on Waste Utilization and Stream Improvement, and has constituted one of the major activities of the engineer during the past year. This work has been a most important factor in harmonizing the attitude between the various factions such as the Izaak Walton League and other sportsmen's organizations, state officials, and industry, and thus heading off the tendency that has prevailed in many sections for the development of radical legislation and policies.

Illustrative of this work is the recent development in Virginia. During the past twenty-two years legislation to prohibit stream pollution has been sponsored in every Virginia legislature by wild life and sportsmen's organizations. Such legislation, however, has always been opposed by industry and failed to pass. This has created antagonism between the various interests. At the suggestion of Mr. Baker, state authorities called a conference of representatives of industry, the Izaak Walton League, state officials, and municipalities. At this conference the problem of stream pollution and its relation to industry was discussed. A committee was appointed, consisting of representation from the Izaak Walton League, the Virginia League of Municipalities, officials from three state departments interested in the problem, and four representatives of industry appointed by the Virginia Chamber of Commerce. J. P. Hummel, of Hummel-Ross Fibre Corporation, is the representative of the paper mill group, while others represent various branches of industry. This committee has raised a fund of $7,500 to initiate the work prior to the meeting of the next legislature in 1930. $5000 of this fund was contributed by the various industries, and $2500 appropriated from the State Conservation Fund. At a recent meeting of the committee Mr. Baker assisted in organizing a definite program of investigation and research.

Although many states have legislation regarding stream pollution, such legislation is generally prohibitory rather than regulatory in its nature. The development of cooperative programs in these states has therefore been important, and has been definitely brought about in the states of Minnesota, Indiana, and Connecticut. Developments are also now in progress in West Virginia and New York State. Although cooperative programs had previously been initiated in the states of Ohio, Wisconsin, Michigan, Pennsylvania, and Maryland, much has been done to continue and perfect the activities in these states.

Kalamazoo Paraffin Co. Enjoys Record Month

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., November 30, 1928.—Kalamazoo Paraffin Company made and shipped over 500,000 pounds of wax during October. It was the biggest month in the history of the concern, according to M. A. Macomber, president. It has been necessary of late to install several tanks to furnish adequate storage capacity to care for the steadily increasing output.

Dean S. Macomber, son of the president, will on December 1, come into the company as treasurer and general office manager. For the past ten years he has been connected with the Chicago Association of Commerce.

A Correction

An error was made in the advertisement of the Valley Iron Works Company which appeared in the November 22 issue of the PAPER TRADE JOURNAL, page 39, wherein it was stated that 237 mills now operate 113 Voith Inlets. This should have read 113 mills now operate 237 Voith Inlets.

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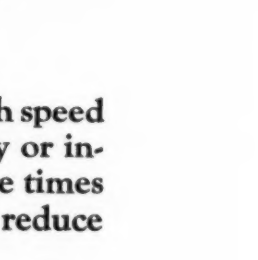

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Edited by
RONALD G. MACDONALD, Secretary

Flume Cuts Wood Handling Costs *

Use of an 1800-foot flume between the wood mill and the chipper room of the Camas, Wash., unit of the Crown-Willamette Paper Co., has effected a remarkable saving in wood handling costs, according to officials of the company. The total length, including the run to the grinding room is 2300 feet. The flume was completed late in 1927 by the regular mill construction crew.

The supporting structure is built of red cedar anchored on concrete piers. A 60-foot steel truss is used to carry the flume over the tracks of the Spokane, Portland & Seattle Railroad. The trough is three-sixteenths-inch steel plate formed in 12-foot lengths and welded on the job into one continuous piece. An interesting feature of this welding was that the men did the work at a saving of 65 per cent over the best bid the company was able to secure from outside contractors.

The eight-inch pipe which furnishes water for this flume is connected to the mill main on the north side of the grinder room and is carried under the caps of the flume structure to the head of wood mill end of the flume. This pipe was also welded by the men.

Constant Communication Effective

Constant communication between the wood mill, chipper room and grinder room is by means of red and green signal lights and by telephone. This has proven very effective in controlling the wood supply and in regulating water flow.

After the wood leaves the barker at the sawmill it is raised 60 feet to the head of the flume by a conveyor which is 180 feet long. This conveyor is shown in one of the illustrations.

At the top of the conveyor there is a watchman or checker who not only controls the water flow but checks and counts the blocks of wood as they drop into the flume.

Approximately 3350 gallons of water per minute are delivered to the head of the flume, for delivery to the chipper room. This is reduced to about 2500 gallons per minute when wood is delivered to the grinder room.

The velocity of the water at 3000 gallons per minute is about 10 feet per second. It is not uncommon to flume 4000 sticks of wood per hour and from observation the flume will easily carry 10,000 sticks per hour, although the present conveyor would not handle this larger amount. Four thousand sticks of wood represent approximately 280 cords of wood.

When the wood reaches the chipper room it is discharged into a conveyor, in the bottom of which is a grizzly. This grizzly discharges the water and small slivers into a screen box, the water running through the screen into a sump pit, and from there is again pumped back to the head of the flume, thus making a very material saving in the use of water. At the grinder room the wood and water are distributed over the pit through side outlets in the flume. The bottom of the pit has ditches with iron gratings over them. The water is drained off into the tail-race and on this operation is lost.

Interesting Feature of Operation

An interesting feature of this operation is where the conveyor takes the wood from the end of the flume to the chipper room, the wood delivered to about 25 feet above the chippers and fed through heavy metal spouts. These spouts are able to hold enough wood so that the weight of the blocks maintains sufficient pressure to insure good chipping. A traveling table at the head of the chipper spouts allows for a careful segregation of the wood and all dirty wood goes over the end of this table to gondola cars for delivery back to the wood mill for cleaning, or to be used as fuel.

Previous to installation of this flume, wood was handled from the wood mill to the chipper room and the grinder room by means of the tramway cars and there were 40 cars in this service. The wood had to be loaded by hand onto the cars at wood mill and then was unloaded at the chipper room and into the grinder room by hand. The operation of the flume has eliminated this excessive handling, has minimized accident hazard, and is a big factor in cleanliness of the mill.

Although the total cost of this installation was well up in the thousands of dollars the savings in handling cost and safety more than justified the expenditure.

The illustrations shown with this brief description will give some idea of the character of construction and some of the difficulties that had to be overcome. The company is pleased with the savings made, but is equally pleased with the fine work done by its own men.

* The Timberman.

American Scandinavian Fellow Arrives

Ivan Humble, who has been appointed American-Scandinavian Fellow, arrived at New York this week on the *Gripsholm*. Mr. Humble will be located at the plant of the Container Corporation in Philadelphia, of which B. M. Thomas is general manager and H. L. Joachim technical director.

Mr. Humble is a graduate of the Royal Technical University at Stockholm, Sweden and has been engaged for the past four years as a chemical engineer and sulphite mill superintendent in the mills of Hylte Bruks at Munkedal, Sweden.

Chemistry of the Alkaline Pulp Processes

II.—Effect of Temperature on the Rate of Delignification and Hydrolysis of Spruce Wood With Sodium Hydroxide*

By Mark W. Bray [1]

Determination of the chemical and physical principles underlying the pulping of wood by means of alkaline and neutral agents is necessary to the improvement of processes using these agents. The U. S. Forest Products Laboratory has undertaken fundamental studies for the purpose of tracing individuality, under certain fixed conditions, the effects of the several variables of pulping. A better working knowledge of the control of the pulping reaction may be obtained from such studies. In addition there is the possibility of developing from the results thus secured a formula through which yields and the associated chemical and physical properties of pulps may be predicted. For example, in changing any one of the following pulping variables, the temperature of digestion, the concentration of chemical in the cooking liquor, or the ratio of chemical to wood, it is desirable to know the time necessary under the new conditions to digest a given species of wood, in order to obtain a pulp of maximum yield with definite chemical and physical properties.

This paper, the second of the series, deals with the effect on the yield, the chemical properties, the consumption of chemical, and the rate of the pulping reaction caused by changing the temperature of digestion, other independent variables remaining constant.

In earlier publications,[2] dealing with the chemistry of the alkaline processes, that were based on fundamental studies carried out in this Laboratory, the data presented were obtained mainly from the pulping of various woods on a semi-commercial scale. Recently [3] these fundamental studies have been resumed, this time with the use of apparatus of ordinary laboratory size instead of semi-commercial equipment. The small-scale method of attack permits a high degree of accuracy in the control of the cooking conditions, which are the duration of the cook, the temperature of digestion, and the raw-material ratios. These ratios, which include such variables as the concentration of chemical, the volume of solution, the weight of wood and, therefore, the ratio of chemical to oven-dry wood, express the amounts of water, chemical, and wood in terms of the total charge. In fact, with small-scale equipment, pulps [4] of a definite yield and quality may be duplicated and yield determinations may be checked with as great a degree of accuracy as that of a cellulose or a lignin determination.

Since the pulping experiments are performed on sawdust, using only a very small quantity (25 gms.) for each cook, enough material may be prepared and thoroughly mixed at one time so that all of the cooks in any one field may be conducted on the same uniform sample, thus eliminating the variable of wood quality.

Material

PREPARATION

An 8-foot log of freshly cut, sound spruce wood, *Picea glanca* (Moench) Voss, of 70 annual growth rings, was ground to pass a standard sieve of 40 meshes to the inch and to be retained on one of 60-meshes. In order to remove fats, waxes, and resins, the sawdust secured was placed in cotton bags holding about 75 grams each and was extracted for 24 hours in a Soxhlet apparatus with a 2:1 mixture of benzene and alcohol. The loss in weight caused by this extraction was 1.66 per cent of the oven-dry weight of the wood. This loss was determined by weighing a 30-gram sample of oven-dry wood before and after extraction.

Wood prepared in the manner just described is easily wetted and offers little resistance to the penetration of the alkaline cooking solutions.

CHEMICAL ANALYSIS

Upon chemical analysis, the extracted 40- to 60-mesh wood sawdust showed the following characteristics:

All percentages except the two indicated are based on the oven-dry weight of the extracted wood.

	Per cent
Solubility in hot water	1.70
Solubility in 1 per cent NaOH	9.80
Lignin	29.5
Total cellulose	62.50
Alpha-cellulose (based on weight of cellulose)	72.40
Alpha-cellulose	45.30
Pentosan-free cellulose	56.22
Total pentosans	12.45
Pentosans in cellulose (based on weight of cellulose)	10.05
Pentosans in cellulose	6.28
Pentosans not in cellulose	6.17
Pentosans in the alpha-cellulose	0.73
Total chlorine consumption in the isolation of cellulose	36.20
Chlorine forming HCl in the isolation of cellulose	21.3
Total chlorine consumption of the lignin isolated by the 72 per cent H_2SO_4 method	31.88
Ash	0.09

PREPARATION OF COOKING LIQUORS

Approximately 5 liters of half-normal chemically pure sodium-hydroxide solution, to be used as cooking liquor, was prepared, analyzed, and stored in a large pyrex flask, that was provided with a rubber stopper through which passed a syphon and a soda lime tube. The very small amount of sodium carbonate present was determined, but the amount of chemical used in a cook was based in each case on the NaOH content of the solution.

Digestion Apparatus

For the pulping reactions, the small steel autoclave and the electrically heated thermostatically controlled oil bath employed in heating the autoclave (Plates 1 and 2) were used. While an earlier form of this autoclave and the oil bath has been described somewhat in a previous publication,[3] it was thought that the accompanying illustrations and an additional short description of the apparatus would be of benefit to those who may wish to pursue experiments of a similar nature.

The autoclave, which has a maximum capacity of 350 cc., is provided with a thermometer well extending down into the charge. To seal the closed autoclave a tin gasket, made by pouring the molten metal into the 60 degree groove turned in the cover, as shown in Detail 4 of Plate 1, was found more advantageous than either Babbitt metal or lead. Babbitt melted at the higher temperatures employed in heating the autoclave initially, while lead made the cover stick, thus causing difficulty in removing it at the close of the cook.

The 60 degree inverted-V ridge, on the top of the autoclave, seats itself in the tin gasket of the cover when the latter is pressed tightly into place by means of the large nut.

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* Presented at the Fall Meeting of TAPPI, Wausau, Wis., Sept. 25, 1928. The first paper of this series is "Chemistry of the Alkaline Wood Pulp Processes: I.—Aspen, Loblolly Pine, and Jack Pine by the Soda Process," by Wells, Grabow, Staidl, and Bray. Paper Trade J. 76, T. S. 226 (Apr. 13, 1923).

[1] Chemist in Forest Products, U. S. Forest Products Laboratory, Madison, Wis.

[2] Bray and Andrews, Paper Trade J. 76, No. 19, 49 (May 10, 1923). Wells, Grabow, Staidl, and Bray, Paper Trade J. 76, No. 24, T. S. 226 (April 13, 1923).
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Aiyar, Ind. Eng. Chem. 15, 714 (1923).
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[3] Miller and Swanson, Ind. Eng. Chem. 17, 843 (1925).
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Bray and Peterson, Paper Trade J. 86, No. 3, 48 (Jan. 19, 1928); Pulp and Paper Magazine of Canada 26, No. 2, 37 (Jan. 12, 1928); Paper Trade J. 84, No. 23, 40 (June 9, 1927).

[4] Bray and Peterson, Paper Trade J. 86, No. 3, 48 (Jan. 19, 1928).
[5] Miller and Swanson, Ind. Eng. Chem. 17, 843 (1925).

The oil bath is provided with two motor-driven agitators; one directs the oil upward whereas the other directs it downward. Heating is accomplished with two electric resistance units; the three-heat 10-ampere unit is controlled manually, while the three-heat 4-ampere one is controlled automatically. The large unit is used in starting, to raise the temperature rapidly to the desired; the small one maintains it constant within ± 0.15 degree C. after the bath and autoclave have reached equilibrium.

The temperature of the bath is held constant by means of a thermoregulator, which consists essentially of a 5-foot seamless steel tube, of ⅜-inch iron-pipe size, filled with mercury. The thermoregulator is provided with a three-way, capillary, glass stopcock, one arm of which opens into a reservoir for mercury storage, used during the period of temperature rise and adjustment, while the other arm is used for fine adjustments. The stopcock is cemented to the nickel union at the top of the seamless steel tube with dental plaster similar to plaster of Paris, but capable of withstanding the high temperatures employed. Attempts to make a glass-to-metal joint by soldering a silver-mirrored and copper-plated capillary tube to the nickel union resulted in fouling the mercury surface as the result of gradual seepage and amalgamation of the mercury at the joint.[6] Contact is made at the mercury surface with the grid of an A-216 Western Electric vacuum tube in the control circuit by means of a steel needle, which may be raised or lowered for fine adjustments with a brass screw by which the needle is held in position.

The control device illustrated in the upper corner of Plate 2 is similar to that described by D. J. and J. J. Beaver,[6] but is modified to increase the power in the relay circuit and to suit the special needs of the apparatus.

This type of temperature control offers many advantages over the use of batteries in the control circuit, especially in that the voltage and current at the mercury surface are so low that the mercury remains clean; hence a positive contact is always made. This design of mercury thermoregulator has been in use for nearly three years at the Laboratory without the necessity of cleaning the mercury surface. Further, batteries may give out during a night's run, thus allowing the oil bath to become dangerously hot. With the apparatus connected to the heating line, no danger would entail should the current be turned off temporarily at any particular time during the run.

A commercial brand of hydrogenated vegetable oil was first employed as the circulating medium in the oil bath for approximately a year, but this oil breaks down and becomes thick, and also develops acidic properties that cause electrodeposition of the bath metals. At present a high-boiling tempering oil, which seems to give more satisfactory results, is in use.

Experimental Procedure

Digestion

A 25-gram sample of the extracted spruce-wood sawdust, previously dried for 16 hours at 105 degrees C., was introduced into the altoclave with 250 cc. of half-normal sodium hydroxide solution. Thus the ratio of the chemical (NaOH) to the oven-dry weight of the wood, which is called the "chemical ratio," was 0.20; this ration usually is expressed as a percentage, 20 per cent in

[6] D. J. and J. J. Beaver, Ind. Eng. Chem. 15, 359 (1923).

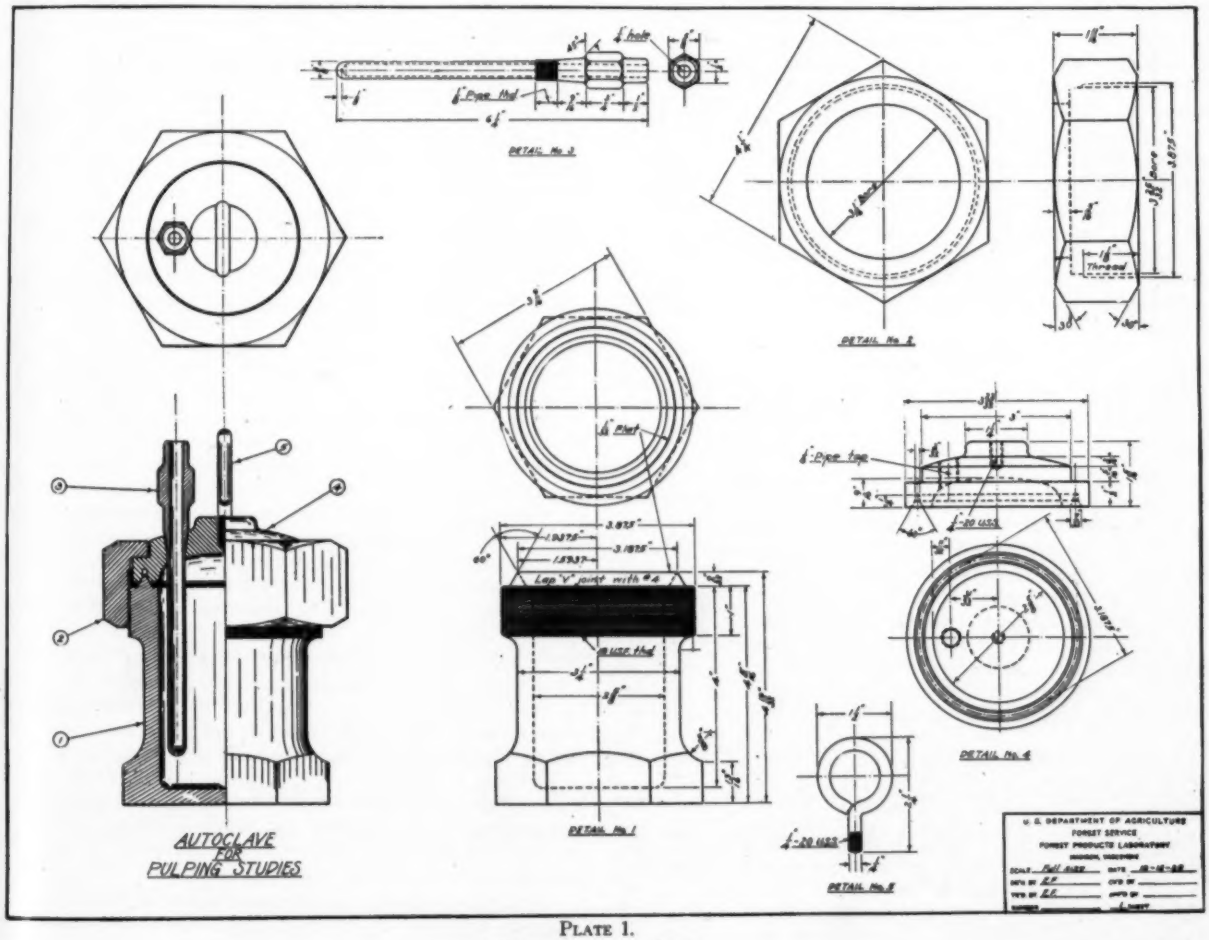


PLATE 1.
Autoclave for Pulping Studies.

this case. The concentration of the chemical was 20 grams per liter. The autoclave was closed immediately after the introduction of the charge, and was placed in the oil bath when the bath had reached a temperature of from 10 to 30 degrees C. (depending on the cooking temperature) higher than that desired for cooking. The larger temperature gradient from the oil to the charge was used for the lower pulping temperatures in order to minimize the time required to reach the maximum temperature. The method of manipulation of the oil bath in bringing the autoclave up to the desired cooking temperature and maintaining it there and the method of yield determination were the same as those previously reported by the author in articles I and III on "The Chemistry of Pulping Flax Straw"

At the end of the predetermined cooking period the pulp was separated from the liquor by filtration and washing in the manner previously described.[7] A 50 cc. sample of the black or spent liquor, taken for analysis, was treated with 60 cc. of 10 per cent barium chloride solution, was diluted to 250 cc., and the amount of sodium hydroxide remaining was then estimated in a 25 cc. portion by titration with N/8 sulphuric acid, after the organic matter, precipitated by the barium chloride, had settled.

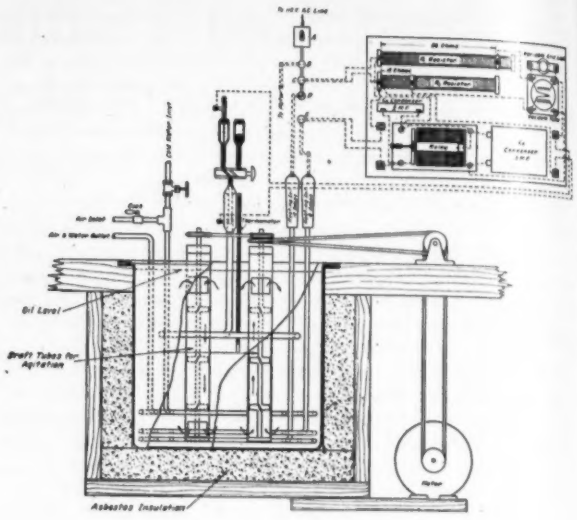
Analysis of the Fibrous Residue

The fibrous residue or pulp was subjected to chemical analysis and the following determinations were made in accordance with the methods adopted in this Laboratory: Lignin was determined by Schorger.[10] Since beta- and gamma-cellulose determinations Cable[9] but modified by using 20 cc. of 72 per cent sulphuric acid, instead of 10 cc., per gram of oven-dry sample. The total pentosans, the pentosans in the cellulose, and the pentosans in the alpha-cellulose were determined in accordance with the method reported by Schorger.[10] Since beta- and bamma-cellulose determinations were made, the alpha-cellulose was determined gravimetrically in accordance with the procedure described by the author;[11] in which the alkali-treated cellulose is washed in turn with 4 per cent sodium hydroxide solution, cold water, hot 10 per cent acetic acid and, finally, with approximately 500cc. of hot distilled water. The cellulose content[12] and the chlorine consumed during the isolation of the cellulose were determined by the method, recently reported by the author, in which the pulps are chlorinated in a fritted, Jena-glass crucible assembled in a modified Roe[13] apparatus. The short chlorination periods suggested by Ritter[14] were used in place of the longer chlorination periods adopted by Schorger.[10]

Description of the Tests

Four series of pulping tests, consisting of five cooks each, were made at temperatures, respectively, of 140 degrees C., 160 degrees C., 170 degrees C., and 180 degrees C., in order to determine the change in the rate of the pulping reaction with increase of temperature, and also to determine the changes that take place in the chemical properties of the residue resulting from the cooking process. Throughout all the tests at any given temperature the conditions of treatment, namely, concentration of chemical (20 gms. per liter), volume of liquor (250 cc.), and ratio of chemical to wood (20 per cent of the weight of the oven-dry wood) were maintained constant; the time of digestion was varied.

Periods of digestion were successively lengthened in the experiments at each temperature in order to afford a view of the reaction as it progressed. The time required to bring the contents of the autoclave to maximum temperature was kept as nearly constant as possible for each digestion temperature. The time of digestion was recorded from the moment the autoclave was immersed in the oil bath until it was removed at the end of the cooking period.



THERMOSTATICALLY CONTROLLED OIL BATH

PLATE 2

Thermostatically Controlled Oil Bath.

Discussion of Results

Figure 1 shows graphically a summary of the results of the pulping experiments. In this figure, the data for each digestion temperature are recorded against time of pulping, thus facilitating visualization of the relationship of temperature to the velocity of the pulping reaction.

Effect of Total Time of Digestion on Yield and Chemical Properties

The yield data, given in Table 1 and plotted graphically against time in Fig. 2, together with the chemical data recorded in Fig. 1, show that the reaction is very rapid during the early stages of pulping at any particular temperature of digestion. This fact has been pointed out in earlier publications[15] from this Laboratory. The pulps attain a higher degree of purity with increasing total time of pulping, as shown by their chemical properties. The rate of removal of lignin and substances other than cellulose is much greater than the rate of loss of cellulose during pulping. As the pulps increase in purity, smaller amounts of chlorine are required for subsequent isolation of the cellulose. The pentosans in the cellulose are more stable and are less rapidly removed than those not in the cellulose. Pulping down to a yield of 45.7 per cent (the minimum observed), however, did not remove entirely the pentosans not in the cellulose. The pentosans in the alpha-cellulose appear to remain constant during the initial stages of pulping, as shown in the data given for the first series of the pulping tests.

The weight of alkali consumed is a linear function of the weight of wood dissolved for any temperature of digestion within the range studied. The graph (which is not given here) does not pass through the origin of zero weight of wood dissolved and zero consumption of chemical, possibly because of the initial solvent action of the alkali on the wood. The relationship between alkali consumed and wood dissolved can be expressed mathematically and the consumption of chemical can be calculated for any desired yield.

An increase in temperature increases the rate of the pulping reaction, as evidenced by the lower yields and higher purities of

[7] Bray and Peterson, Ind. Eng. Chem. 19, 371 (1927); Paper Trade J. 86, No. 3, 48 (Jan. 19, 1928).
[9] Ost and Wilkening, Chem. Ztg. 34, 461 (1910).
[9] Mahood and Cable, Ind. Eng. Chem. 14, 727 (1922).
[10] Schorger, Ind. Eng. Chem. 9, 556 (1917).
[11] Bray and Andrews, Ind. Eng. Chem. 15, 377 (1923).
[12] M. W. Bray, "A Short Method for the Determination of Cellulose and the Amount of Chlorine Consumed in Its Isolation." Presented before the Division of Cellulose Chemistry at the 75th meeting of the Am. Chem. Soc., St. Louis, Mo., April 16 to 19, 1928.
[13] R. B. Roe, Ind. Eng. Chem. 16, 808 (1924).
[14] G. J. Ritter, Ind. Eng. Chem. 16, 147 (1924).
[15] Bray and Peterson, Ind. Eng. Chem. 19, 371 (1927).
Bray and Andrews, Paper Trade J. 76, No. 19, 49 (May 10, 1923).

pulps obtained for a given period of digestion. Fig. 1 shows that, for a 10 degree C. rise in temperature, the velocity of the pulping reaction is slightly more than doubled; that is, an approximate equal yield of pulp having similar chemical properties and with an equivalent consumption of chemical during pulping is obtained in half the cooking time.[18] For example, Samples 405, 409, and 413, pulped for 4 hours, 2 hours, and 1 hour at 160 degrees, 170 degrees, and 180 degrees C., respectively, may be noticed.

Fig. 2 shows that the yield-time curves have a definite and typical shape.

If sets of yield data obtained from digestions of 1 to 8 hours at any particular temperature are plotted on logarithmic paper against time of digestion, as in Fig. 3, each set of points falls on a straight line for all temperatures studied below 180 degrees C. This indicates that the rate of the pulping reaction may be expressed the logarithmic function and that the yield-time relationship approaches the form of an hyperbola.

[18] Miller and Swanson, "Chemistry of the Sulphite Process," No. VIII, Ind. Eng. Chem. 17, 843 (1925), found the same rule to hold true for hydrolysis with sulphite cooking liquor.

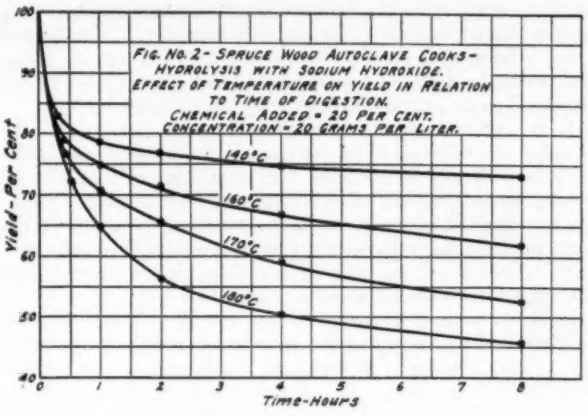


FIG. NO. 2 - SPRUCE WOOD AUTOCLAVE COOKS - HYDROLYSIS WITH SODIUM HYDROXIDE. EFFECT OF TEMPERATURE ON YIELD IN RELATION TO TIME OF DIGESTION. CHEMICAL ADDED = 20 PER CENT. CONCENTRATION = 20 GRAMS PER LITER.
Yield - Per Cent
Time - Hours
140°C
160°C
170°C
180°C

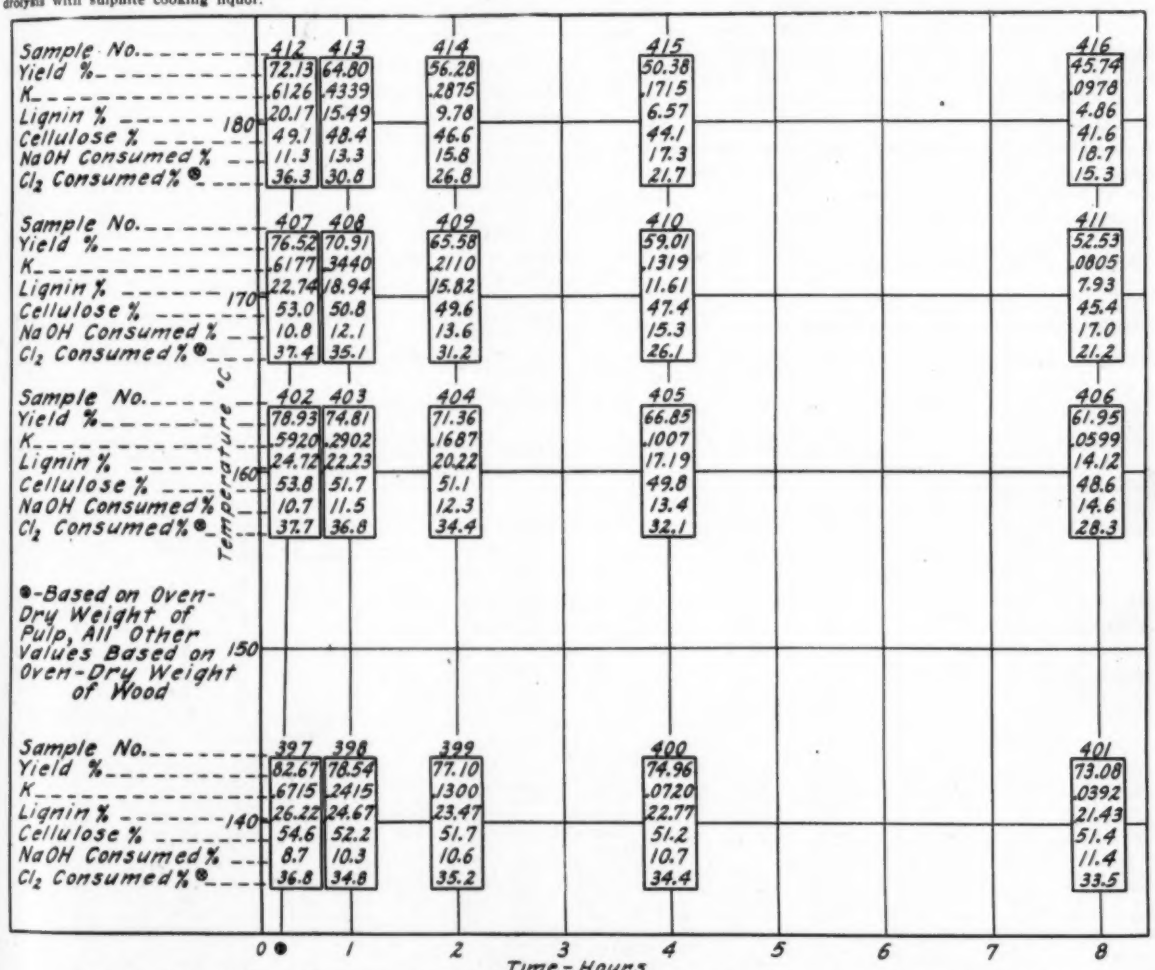


FIG. NO. 1 - SPRUCE WOOD AUTOCLAVE COOKS - HYDROLYSIS WITH SODIUM HYDROXIDE. 20 PER CENT OF CHEMICAL ADDED ON OVEN-DRY WEIGHT OF WOOD; CONCENTRATION = 20 GRAMS PER LITER. EFFECT OF TEMPERATURE ON THE VELOCITY OF THE PULPING REACTION.

●-Time at Which Autoclave Reached Maximum Temperature

Arrhenius,[17] working with the data of J. Brunn, asserts that the pulping of wood by the alkaline processes obeys the law of a monomolecular reaction. He obtained, however, a considerably lower value for his velocity constant for 10 hours duration of reaction than he did for 6 hours; he employed a temperature of 160 degrees C., and maintained constant all other conditions.

If the velocity constants, K, are calculated according to the equation for monomolecular reactions, from the yield data given in Table 1, it may be observed (the tenth column) that these K values, obtained for any given temperature, decrease with increasing total time of digestion. S. Schmidt-Nielsen,[18] working on the stant value for the "velocity constants" was not obtained when they were calculated on the basis of a monomolecular reaction, and that the valves decreased with time of cooking.

It may be pointed ou here, however, hat the K valves decrease regularly and therefore decrease according to a definite law. This fact is shown in Fig. 4 in which the values of K are plotted on logarithmic paper against the time of digestion, for each of the digestion temperatures. The values obtained for any given temperature under the conditions of the experiment, fall on a straight line for all yields above 52 per cent. For yields lower than this, however, the slope of the logarithmic curves is not the same as that obtained for yields higher than 52 per cent. The same hyperbolic curve does not hold. This fact may indicate a change in the speed of the pulping reaction, or merely that the hyperbolic curve is only approximate within a specified range of reaction and that, consequently, some other type of equation or of equations will be necessary to explain the side reactions that take place. A change in the nature of the reaction therefore appears to occur at approximately this yield value; that is, the reaction that predominated during the early stages of pulping is now either less effective or is masked by the slower reaction, namely, the removal or hydrolysis of the more stable cellulose. At about the 52 per cent yield in the pulping process, the reaction velocity decreases markedly.

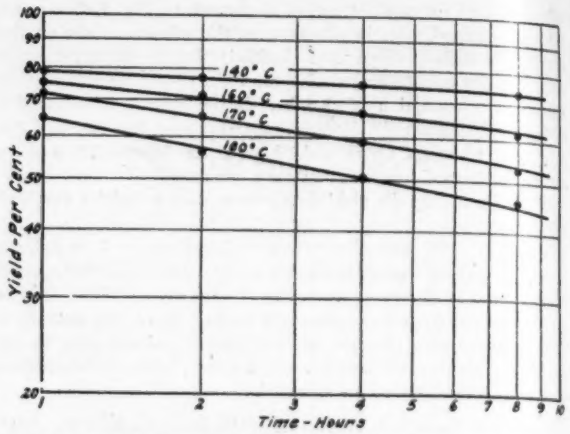


FIG. NO. 3 - SPRUCE WOOD AUTOCLAVE COOKS - HYDROLYSIS WITH SODIUM HYDROXIDE. EFFECT OF TEMPERATURE ON YIELD IN RELATION TO TIME OF DIGESTION

Although the slopes of the logarithmic curves for the K values obtained from yields lower than 52 per cent are different from those for the higher yields obtained during the earlier stages of pulping, it was found, in working with higher chemical ratios[19] that the K values for the lower yields also fall on straight lines,

[17] S. Arrhenius, Medd. Vetenskapsakad. Nobelinst., Stockholm, Band 6, No. 10; Paper Trade J. 82, No. 15, 65 (April 15, 1926).

[18] S. Schmidt-Nielsen, Papir Journalen 14, No. 24, 307 (Dec. 31, 1926); 15, No. 1, 8 (Jan. 29, 1927); Paper Trade J. 84, No. 19, 43 (May 17, 1927). physical chemistry of the soda process, also noticed that a con-

[19] These facts will be treated more in detail by the author in a later publication of this series.

TABLE 1.—THE EFFECT OF TEMPERATURE ON THE VELOCITY OF THE PULPING REACTION IN THE HYDROLYSIS OF SPRUCE WOOD WITH SODIUM HYDROXIDE

Chemical added: 20 per cent based on oven-dry weight of wood. Concentration: 20 grams per liter.

		Digestion Conditions						Results of Digestion				Analysis of Pulps. Based on oven-dry weight of wood							
		Duration of digestion											Cellulose			Pentosans			
Sample No.	Digestion No.	Total, hrs. :min.	To maximum temp., min.	At maximum temp., hrs. :min.	Digestion temp., deg. C.	Oven-dry weight of wood, gms.	Oven-dry weight of residue, gms.	Yield of pulp, per cent	Velocity constant K	NaOH consumed. Based on oven-dry weight of wood, per cent	Chlorine consumption,* per cent	Lignin, per cent	Total, per cent	Pentosan-free, per cent	Alpha-cellulose, per cent	Total, per cent	In cellulose, per cent	Not in cellulose, per cent	In alpha-cellulose, per cent
396	...	Wood sample			...	.....	.....	....	.....	...	36.2	29.5	62.5	56.2	45.3	12.5	6.3	6.2	0.7
								SERIES 1											
397	201	0:17	17	0:00	140	24.101	19.925	87.67	0.6715	8.7	36.8	26.2	54.6	48.7	43.3	10.2	5.9	4.3	1.1
398	203	1:00	20	0:40	do	24.994	19.631	78.54	0.2415	10.3	34.8	24.7	52.2	46.5	42.5	9.3	5.7	3.6	1.0
399	204	2:00	20	1:40	do	25.008	19.282	77.10	0.1300	10.6	35.2	23.5	51.7	46.3	41.5	9.0	5.4	3.6	1.0
400	202	4:00	18	3:42	do	24.060	18.037	74.96	0.0720	10.7	34 4	22.8	51.2	45.8	41.2	8.4	5.4	3.0	1.0
401	205	8:00	23	7:37	do	24.992	18.264	73.08	0.0392	11.4	33.5	21.4	51.4	45.8	41.7	8.1	5.6	2.5	1.1
								SERIES 2											
402	210	0:24	24	0:00	160	24.956	19.697	78.93	0.5920	10.7	37.7	24.7	53.8	47.8	...	9.2	6.0	3.2	...
403	209	1:00	25	0:35	do	24.963	18.675	74.81	0.2902	11.5	36.8	22.2	51.7	45.7	...	8.4	6.0	2.4	...
404	207	2:00	24	1:36	do	24.953	17.806	71.36	0.1687	12.3	34.4	20.2	51.1	45.6	...	7.6	5.5	2.1	...
405	206	4:00	24	3:36	do	24.936	16.669	66.85	0.1007	13.4	32.1	17.2	49.8	44.5	...	6.7	5.3	1.4	...
406	208	8:00	24	7:35	do	24.977	15.472	61.95	0.0599	14.6	28.3	14.1	48.6	43.6	...	5.8	5.0	0.8	...
								SERIES 3											
407	213	0:26	26	0:00	170	25.143	19.240	76.52	0.6177	10.8	37.4	22.7	53.0	47.3	...	8.5	5.7	2.8	...
408	215	1:00	28	0:32	do	25.153	17.836	70.91	0.3440	12.1	35.1	18.9	50.8	45.7	...	7.1	5.1	2.0	...
409	214	2:00	28	1:32	do	25.172	16.508	65.58	0.2110	13.6	31.2	15.8	49.6	44.7	...	6.2	4.9	1.3	...
410	211	4:00	28	3:32	do	25.055	14.786	59.01	0.1319	15.3	26.1	11.6	47.4	42.7	...	5.2	4.7	0.5	...
411	218	8:00	29	7:31	do	25.080	13.176	52.53	0.0805	17.0	21.2	7.9	45.4	41.4	...	4.6	4.0	0.6	...
								SERIES 4											
412	222	0:32	32	0:00	180	25.105	18.108	72.13	0.6126	11.3	36.3	20.2	49.1	44.8	...	7.6	4.3	3.3	...
413	217	1:00	35	0:25	do	25.064	16.241	64.80	0.4339	13.3	30.8	15.5	48.4	44.2	...	6.1	4.2	1.9	...
414	221	2:00	32	1:28	do	25.126	14.140	56.28	0.2875	15.8	26.8	9.8	46.6	42.7	...	4.7	3.9	0.8	...
415	219	4:00	38	3:22	do	25.088	12.633	50.38	0.1715	17.3	21.7	6.6	44.1	40.4	...	4.2	3.7	0.5	...
416	220	8:00	32	7:28	do	25.106	11.484	45.74	0.0978	18.7	15.3	4.9	41.6	38.4	...	3.5	3.2	0.3	...

* Results based on oven-dry weight of fibrous residue.

when the data are plotted similarly on logarithmic paper. It is, therefore, recognized that these K values are not velocity constants, since the reaction is obviously not monomolecular. They are calculated as though the reaction were monomolecular for the purpose of carrying further the mathematical treatment of the reaction rate that is now presented.

Within the range of the experiments, the lines of Fig. 4 (K plotted against time) for yields above 52 per cent are expressed mathematically by the general equation for the hyperbola, which when plotted on logarithmic paper becomes a straight line:

$$K \cdot t^a = C$$

where K is the velocity constant, t the time of digestion in hours, A the slope of the line, and C a constant. Knowing that the lines of Fig. 4 are straight, any one of them may be determined by two points only; data giving such points, within the range of temperature studied, may be secured experimentally by two pulping tests made with all conditions except time maintained constant. A line obtained thus may be used to predict, by means of graphic calculation, the value of K and therefore the yield of pulp for any other period of digestion, provided that the yield does not fall below 52 per cent. The same results may be derived mathematically by means of the preceding equation.

The yield of pulp obtainable for any period of digestion is calculated from the K value by substitution in the equation for a monomolecular reaction. The following example, taken from the data for Series 1 in Table 1, is given for the calculation of the K value and the yield of pulp for 8 hours of digestion, at 140 degrees C., with 20 per cent sodium hydroxide at a concentration of 20 grams per liter. The calculation is based on the hyperbolic equation, $K \cdot t^a = C$. Knowing the yields at 1 hour and at 4 hours of digestion, the slope a of the curve may be determined by either measurement or calculation. C is the intercept, that is, the K value at 1 hour of digestion; here the logarithm of time is zero. Expressing the hyperbolic equation in logarithmic form,

$$\text{Log } K = \log C - a \cdot \log t$$

Substituting the numerical values of a and C in this equation,

$$\text{Log } K = (9.38298 - 10) - (0.8715 \times 0.90309)$$

$$\text{Log } K = 8.59588 - 10$$

$$K = 0.0394$$

The corresponding observed value for K is 0.0392.

From the equation for a monomolecular reaction,

$$K = \frac{2.3025}{t} \cdot \log \frac{(m)}{(m - x)},$$

where m is the percentage of wood taken at the beginning of the reaction, namely, 100 per cent, and x is the percentage removed during the progress of the reaction. Then $(m - x)$ is the residue

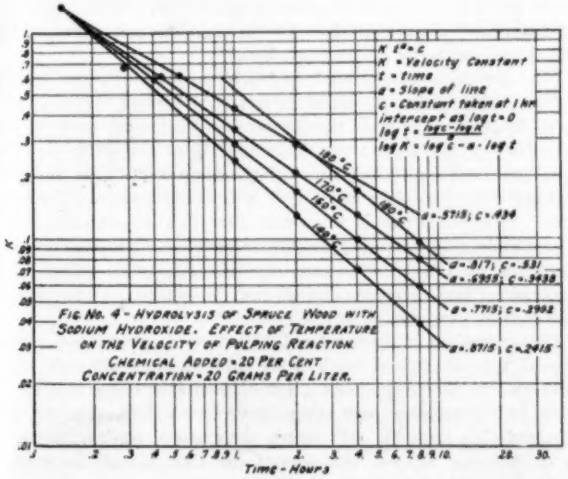
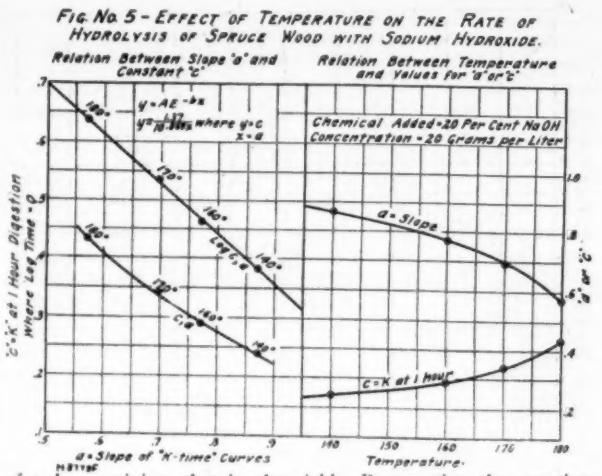


FIG. No. 4 - HYDROLYSIS OF SPRUCE WOOD WITH SODIUM HYDROXIDE. EFFECT OF TEMPERATURE ON THE VELOCITY OF PULPING REACTION. CHEMICAL ADDED = 20 PER CENT. CONCENTRATION = 20 GRAMS PER LITER.

FIG. No. 5 - EFFECT OF TEMPERATURE ON THE RATE OF HYDROLYSIS OF SPRUCE WOOD WITH SODIUM HYDROXIDE.


Relation Between Slope "a" and Constant "c"
Relation Between Temperature and Values for "a" or "c"
Chemical Added = 20 Per Cent NaOH
Concentration = 20 Grams per Liter
a = Slope
C = K at 1 Hour
a = Slope of "K-time" Curves
Temperature.

of pulp remaining, that is, the yield. Rearranging the equation,

$$\text{Log } (m - x) = \log m - \left(\frac{K \cdot t}{2.3025} \right)$$

Substituting the numerical values in this equation,

$$\text{Log of yield} = \log 100 - \left(\frac{2.3025}{\frac{0.03155}{0.03943 \times 8}} \right)$$

$$\text{Log of yield} = 2.0000 - \frac{0.03155}{2.3025}$$

$$\text{Log of yield} = 1.86320$$

$$\text{Yield} = 72.98 \text{ per cent}$$

The corresponding observed value for the yield is 73.08 per cent.

Effect of Temperature of Digestion on Yields

The family of hyperbolic lines in Fig. 4, obtained by plotting the values of K against time of digestion for any given temperature, when extrapolated apparently converge at a point. This point seems to indicate directly the time required to obtain the temperature at which the pulping reaction begins to proceed at an appreciable velocity, and thus indicates indirectly the temperature itself. The time required to bring the contents of the autoclave up to the temperature at which the reaction apparently starts is approximately 8 minutes. The temperature of the contents of the autoclave was taken at this period of digestion in cooks made subsequent to those reported and was found to be approximately 85 degrees C. in all cases.

In view of the fact that all the values for K fall on a straight line for any given temperature, and that the logarithmic lines for the various temperatures employed in these experiments belong to a family, meeting at a single point, it is possible that a mathematical relationship exists between the temperature of digestion and the rate of the pulping reaction. This possibility is under investigation.

The logarithmic lines in Fig. 4 differ from one another merely in slope, that is, in the rate of change of the K value with digestion temperature. The greater the slope of these lines the slower does the pulping reaction proceed. If the values for the constant C are plotted on rectilinear paper against the slope of these lines, a curve such as the C, a curve of Fig. 5 is obtained. C is the intercept at 1 hour of pulping where time is unity and log t is zero. The equation of the line so plotted would be determined with difficulty. However, by plotting the *logarithm* of the constant C against the slope a of the lines of Fig. 4, a straight line is obtained. This line, the log C, a curve of Fig. 5, is hyperbolic; hence it may be expressed by the general exponential equation, $Y = AE^{-bx}$, which was used in this paper with Briggsian instead of Naperian values. For convenience of measurement, the values

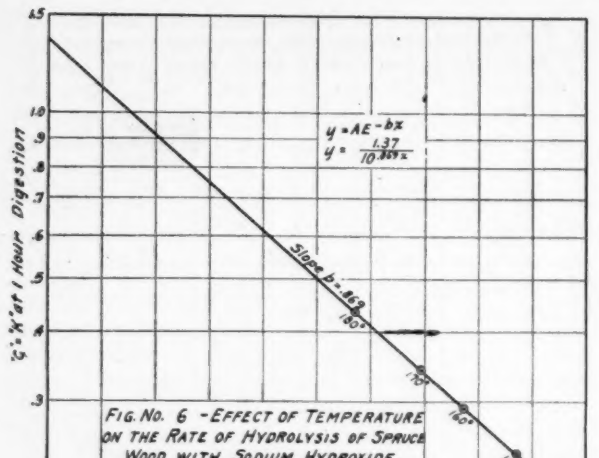


FIG. NO. 6 - EFFECT OF TEMPERATURE ON THE RATE OF HYDROLYSIS OF SPRUCE WOOD WITH SODIUM HYDROXIDE. RELATION BETWEEN SLOPE "a" AND CONSTANT "C"

may be plotted on semilogarithmic paper as in Fig. 6, and the same straight line of the same equation $Y = AE^{-bx}$ is then obtained. In both graphs, Figs. 5 and 6, values for C are plotted as ordinates and values for a as abscissas. In the typical equation just given A is the intercept on the vertical axis, which is 1.37 for Fig. 6; E is the base of the Briggsian system of logarithms, 10; b is the slope of the line, 0.869, obtained by measurement of Fig. 6; x is the exponent a that expresses the slope of the *K-time* curve of Fig. 4; and Y is the constant C of the *K-time* curve of the same figure. Substituting these numerical values in the preceding equation,

$$Y = (1.37) \cdot (10^{-0.869x})$$

or

$$Y = \frac{1.37}{10^{0.869x}}$$

Substituting this value for C in the hyperbolic equation, $K \cdot t^a = C$,

$$K \cdot t^a = \frac{1.37}{10^{0.869a}}$$

or $\quad \text{Log } K + a \cdot \log t = \log 1.37 - (0.869a \cdot \log 10)$

Solving for the slope a of the hyperbolic curve (fig. 4),

$$a = \frac{\log 1.37 - \log K}{\log t + (0.869 \log 10)}$$

Since log 10 to the base 10 is unity, the equation becomes

$$a = \frac{\log 1.37 - \log K}{\log t + 0.869}$$

From this equation, the slope of any line in Fig. 4 may be calculated for any temperature when the K value for any definite period of digestion has been determined by experiment for that particular temperature, provided the yield exceeds 52 per cent.

Having determined the value of K by experiment for some definite period of digestion, and having calculated the slope a of the logarithmic line (Fig. 4), values for K and therefore yield of pulp may be calculated for the period of any other cook made at the same temperature and under the same pulping conditions as those of the experiment from which the K value was determined. This statement, however, holds only for the calculation of yields that have not fallen below 52 per cent.

The prediction of yields below 52 per cent will be considered in another paper of this series in which the use of higher chemical ratios will be reported.

Effect of Temperature of Pulping on Chemical Properties of the Pulps

The data given in Table 1 and plotted graphically in Fig. 1 indicate that increasing the temperature of digestion, within the range between 140 degrees C. and 180 degrees C., increases the velocity of the pulping reaction, but has little effect on the chemical properties of the resulting pulps when the reaction is carried to the same yield. The rates of removal of lignin, of pentosans, and of substances other than cellulose do not materially change relative to one another with change of temperature. Consequently, pulping down to the same yield, within the temperature range of these experiments, gives pulps of similar chemical properties, regardless of the digestion temperature employed. When the data for the lignin content are plotted against yield of pulp obtained under conditions of pulping the same except for the digestion temperatures, the relationship is linear.

The "velocity constants" for lignin, calculated as though the reaction were monomolecular, decrease with time of digestion, in a manner similar to that of those obtained from the yield data. Curves of the type of those given in Fig. 4 are obtained when the values for the "velocity constants" are plotted on logarithmic values for "velocity constants" are plotted on logarithmic paper.

The temperature of digestion of spruce wood with sodium hydroxide affects the velocity of the pulping reaction. A study of the effect on this velocity, as measured by the yield, the chemical consumed, and the chemical properties of the resulting pulps, has been made. This study has shown that increasing the temperature materially increases the rate of the reaction, and that with a rise of 10 degrees C. approximately the same yield, the same chemical properties of the resulting fibrous residue, and the same chemical consumption is obtained in half the cooking time.

Under the conditions set forth in this paper, the order of the reaction in the pulping of spruce wood with sodium hydroxide appears to be above that of a monomolecular reaction, since constant values are not obtained, either for yield or for lignin, when the proper values are placed in the formula of the monomolecular reaction. The velocity constants K, calculated as though a first order reaction obtained, decrease with time of pulping. The mathematical relationships of these K valves, however, indicate that a logarithmic function expresses the reaction within the limits of the experimental work, and that the formulas thus derived may be used for predicting from a single experiment the yields obtainable at any given total time of reaction, (all variables other than time remaining constant,) provided that such prediction is not carried beyond the experimental evidence.

Joint Educational Committee Survey

Splendid results have been reported by the progressive pulp and paper mills throughout the country, which have been utilizing a program of vocational education to develop and increase the ability and efficiency of their workers.

This program has proved of such paramount value to the industry, that a special committee has been formed, which is fostered by and which has two representatives from, each of the following organizations: the American Paper and Pulp Association, the Technical Association of the Pulp and Paper Industry and the American Pulp and Paper Mill Superintendents Association. This committee is known as the Joint Educational Committee and has for its purpose promotion of this program and the collection of and coordination of educational data and making suggestions and recommendations for the benefit of the average mill by this program.

This committee is now engaged in making a comprehensive survey of the educational work being done in the pulp and paper mills and in that connection a questionnaire is being sent to all mills in the country requesting formation and suggestions. It is urged that all mills will return their questionnaires promptly to J. Norman Spawn, chairman Joint Educational Committee, P. O. Box 505, Canton, North Carolina.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Processes for Utilization of Heat and Recovery of Alkali in the Production of High Alpha Cellulose Fiber. G. A. Richter assignor to Brown Co. U. S. pat. 1,654,603, Jan. 3, 1928. Unbleached sulphite pulp at a consistency of about 50 per cent is fed to a tank along with an alkaline solution (caustic soda and/or sodium carbonate) and water to dilute it to a consistency of about 10 per cent, and heated to 180 to 220 degrees F. by blowing in live steam. It then passes into a second tank from which it overflows into a counter-current washer, the washings from which are returned to the first tank for diluting the stock. The cycle is allowed to continue until the washings build up to a concentration equivalent to about 10 degrees to 15 degrees Be. The amount of water added in the washer is then increased, the required amount of washings are used for dilution as before and the excess is mixed with 10 degree Be. waste liquor from sodium sulphite cooks for recovery of the alkali. If the cooking liquor contains only sulphurous acid and sodium bisulphite, the combustible matter is burnt in a reducing atmosphere in a combined boiler and smelting furnace, and the molten effluent consisting essentially of sodium sulphide, sodium carbonate and a little sodium sulphate is dissolved in water to form a concentrated boiling solution. A portion of this solution (containing after mixing with the recirculated spent washings the total alkali required for treatment of the unbleached sulphite minus the losses suffered in both the sulphite pulping process and the alkaline treatment), filtered if necessary, is added to the recirculated alkaline washings; the remainder is carbonated to convert the sodium sulphide into sodium carbonate with evolution of hydrogen sulphide (which may be burnt to sulphur dioxide and the latter used for sulphiting the sodium carbonate solution), and the resultant sodium carbonate solution is converted into sulphite cooking liquor by treatment with sulphur dioxide, the carbon dioxide evolved being recovered for use in carbonating the solution of the smelt. The new caustic required for making up losses in both treatments is added in the tank in which the unbleached pulp is treated with alkali. If the total cycle losses in the sulphite plant are equivalent to the amount of alkali necessary to effect digestion of the unbleached pulp, no sodium carbonate liquor will be available in the alpha digesting tank. Though the use of a small amount of sulphide is not objectionable in the alpha treating tanks, if there is any reason for avoiding its presence, the whole of the solution of smelted salts is carbonated, and part of this solution then sent to the alpha treating tanks. When the sulphite liquor contains also sodium sulphate, the mixed spent sulphite liquor and alpha washings are burnt in an oxidizing atmosphere, the smelt is dissolved as above, the portion required in the alpha treating tanks is causticized with sufficient lime to convert both the sodium carbonate and the sodium sulphate into caustic soda, and the remainder is treated with sulphur dioxide to convert it into cooking acid.—A. P.-C.

Process for Recovery of Alkali from Black Liquor. W. Barrs and H. Barrs. Eng. pat. 285,933. The liquor is passed through concentration towers where it is exposed in a relatively finely divided state to a counter current of hot gaseous evaporant, preferably waste flue gases. The moisture saturated but still hot gases leaving the tower are further utilized to heat, e.g., atmospheric air for use in the process. The concentrated liquor from the tower is fed direct to liquid fuel burners and burned to ash, with or without the aid of supplementary fuel, the hot gases from this process being used in the evaporating tower. In order to reduce the tendency of the ash to sinter in the incinerator, a stream of air is directed on to the flame from the burner to effect sudden cooling of the gaseous suspension of the products of combustion. A complete soda recovery plant embodying these principles is described.—A. P.-C.

Consumption of Coal and of Chemicals in Continuous Alkaline Cooking. Raymond Fournier. PAPETERIE 50, 358-365 (Apr. 25, 1928). After a discussion of the advantages of continuous alkaline cooking of slightly lignified material at atmospheric pressure, with simultaneous mechanical treatment to effect defibering, the author calculates the cost of such treatment of straw, showing that semi-chemical straw pulp can be obtained at a cost of 39.70 francs (about $1.60) per 100 kg. air dry, by treatment with lime and soda ash.—A.P.-C.

Alkaline Pulping Process. Baron Cable, Bird & Co., and E. Spencer. Eng. pat. 283,911. To economize working in extracting cellulose or paper pulp from bamboo, wood, grass, straw, reeds or jute waste by digestion, the steam from a digester in which the process is complete is passed into one which is being or has been freshly charged to heat the charge and any associated liquor.—A.P.-C.

Interrelated Pulp Purifying and Viscose Process. G. A. Richter assignor to Brown Co. U. S. pat. 1,653,124, Dec. 20, 1927. In the manufacture of viscose from pulp, the latter is first impregnated with fairly strong caustic soda solution, the excess of which is removed by pressing. The expressed liquor, containing a certain proportion of reaction products of the pulp and alkali, is used for treating unbleached sulphite pulp for the production of high alpha-cellulose pulp, which is then bleached and used for the manufacture of viscose.—A.P.-C.

Composition and Utilization of "Tallcl." Maurice de Keghel. Pulp & Paper Mag. 26, 529-531, 546,548 (Apr. 19, 1928). See Pulp & Paper Mag. 25, 835 (June 30, 1927); Paper Trade J. 85, No. 21, 50 (Nov. 24, 1927).—A.P.-C.

Process for Pulping Grasses. Euromerican Cellulose Products Corp. Eng. pat. 283,851. In the preparation of paper pulp from corn stalks, straw, flax, esparto grass, etc., and the recovery of non-cellulosic components in a utilizable form, the material is treated in three definite stages. It is finely shredded, and the water soluble constituents, largely saccharides, other sugars and salts, are removed by leaching in a stream of hot or cold water. Counter current treatment may be used, the process taking 4 or 5 days. The liquor may be evaporated to a syrup and used as an addition to stock food, or it may be fermented to produce alcohol. The leached material is then disintegrated in a beater, then boiled with caustic soda liquor at ordinary or increased pressures, just enough alkali being used to react with the silica present. This cooking may be done in the beater. The material is separated from this liquor and washed. The liquor containing sodium silicate and a small amount of pentosans may be treated with acid to precipitate the pentosans which may be separated and used as such or added to the leach liquor from the first stage. The partly cooked material is then placed in an ordinary digester and cooked with caustic soda in the ordinary manner, the temperature and pressure being such as to avoid carmelization of the pentosans. After this cooking, the liquor is drawn off and the pulp washed and bleached in the usual manner. The waste liquor from this cooking, containing large amounts of pentosans loosely combined and certain amounts of sodium carbonate and other products, is preferably treated with carbon dioxide, or it may be with sulphur dioxide, by which the

pentosans are precipitated. The pentosans may be separated and used as before mentioned, the remaining liquor may be evaporated and calcined, leached, and causticized in the known way, or, if the amount of non-precipitable materials present is not too great, evaporation and calcination may be omitted.—A.P.-C.

Process for Making Sodium Monosulphite. V. Drewsen assignor to West Virgina Pulp & Paper Co. U. S. pat. 1,659,193, Feb. 14, 1928. Alkali-metal sulphite is converted into alikali-metal sulphide by agitating and aerating the solutions in the presence of coke, charcoal, pumice or other suitable solid inert "surface giving material."—A.P.-C.

Digesting Cellulose Material. H. Wallin. U. S. pat. 1,660,696, Feb. 28, 1928. Wood, straw, or other cellulosic material is cooked with an alkali silicate cooking liquor and the liquor is regenerated for reuse by evaporating and smelting or destructively distilling the residue; the silicic acid content of the cooking liquor is adjusted so that causticization of the smelted or distilled residue is rendered unnecessary.—A.P.-C.

Black Liquor Recovery Process. W. H. Howell, Jr., U. S. pat. 1,670,156, May 15, 1928. After cooking wood in a digester with steam and a liquor such as caustic soda or sodium sulphate solution, the spent liquor is withdrawn and immediately, while still at a high temperature, it is subjected to a vacuum to evaporate and concentrate it and is heated by indirect contact with steam withdrawn from the digester. An apparatus is described.—A.P.-C.

Cellulose from Sugar Cane. E. C. H. Valet. Eng. pat. 277,163, Aug. 25, 1926. Cellulose for paper making is obtained from sugar cane bagasse by agitating it with a heated solution containing 3 to 5 per cent of lime and subsequently boiling it under pressure in a solution containing 6 per cent caustic soda and 2 to 3 per cent of sodium sulphite or of sodium hyposulphite. An apparatus and various details of the procedure are described.—A.P.-C.

Pulp from Cornstalks. O. R. Sweeney. U. S. pat. 1,639,152, Aug. 16, 1927. A pulp for making paper, "lumber substitute," wall board or similar products, is obtained by cooking cornstalks with substances such as lime, soda or sulphite, subjecting the material to the action of micro-organisms such as those naturally present which will effect partial disintegration, and then beating the mass.—A.P.-C.

Fiber Cooking Process. S. D. Wells. Can. pat. 275,851, Nov. 29, 1927. Vegetable fibrous material is softened by treating with a solution containing approximately 7 parts of sodium carbonate to 1 part of sulphur, and with 200 parts of water for each 100 parts of vegetable fibrous material.—A.P.-C.

Treating Black Liquor from the Soda Process. E. Haegglund. Eng. pat. 273,267, June 23, 1926. In treating black liquor from the soda process as described in Eng. pat. 258,035, the liquor from the heat and pressure treatment is evaporated to dryness and the material is subjected to fractional lixiviation to separate the acetate from the less soluble soda. The soda is afterwards causticized to obtain a liquor for further use. Before lixiviation, the dry residue may be heated to about 300 degrees C., to decompose organic substances other than acetate. Volatile products such as methanol may be recovered.—A.P.-C.

Recovery of Soda Ash from Digestion of Cellulose. J. Holmes, H. A. Kingcome and J. L. Jardine. Eng. pat. 288,699, Jan. 11, 1927. The spent liquor from the digester is discharged into a closed receiver and is fed therefrom into a waste heat boiler where it undergoes a preliminary concentration. After further concentration in an evaporator, the liquor is sprayed into an incinerator and burnt, the heat from this operation being used to heat the waste heat boiler, which in turn supplies the low pressure steam requirements of the digesters and soda recovery plant. To facilitate the operation of the waste heat boiler, vigorous circulation should be maintained therein by mechanical means.—A.P.-C.

Process of Treating Bagasse Preparatory to Pulpboard Making. H. T. Price. U.S. pat. 1,656,829, Jan. 17, 1928. Water carrying megasse is heated to the boiling point, caustic soda is added and the boiling is continued for about an hour with stirring; the megasse is then passed between rollers and the pulp is subjected to a further boiling for about an hour.—A.P.-C.

Kraft Pulp and Paper from Pinus Insignis. L. R. Benjamin, J. L. Somerville, R. B. Jeffreys and W. E. Cohen. Council for Scientific and Industrial Research, Australia. BULL. NO. 35, 1928. Preliminary tests showed that the best pulps from *P. insignis* were to be expected from cooks by the sulphate process, using about 21 per cent of alkali and cooking long enough at 100 pounds' pressure to reduce the screenings in the pulp to a suitably small amount. Semi-commercial tests, in which the wood was cooked approximately 4 hours at 100 pounds' pressure per square inch maximum pressure, 20 per cent active alkali (one-third of which is present as sulphide) and a liquor ratio of approximately 6:1 by weight, show that a cord of peeled *P. insignis* will produce 1,050 pounds of first grade commercial pulp (i.e., screened pulp 10 per cent moisture) and about 50 pounds of screenings. That is, 2.14 cords of peeled wood are required for the production of 1 ton of air dry pulp. The estimated barking loss is 14 per cent, so that 2.49 cords of unbarked pulpwood yield 1 ton of air dry pulp. The yield of commercial pulp based on standing timber (50 per cent moisture) would therefore be about 26 per cent. Strength tests are given on the pulp and paper made from this pulp. The *P. insignis* kraft pulp as prepared in this manner is practically equal in quality to pulp at present imported into Australia for the manufacture of kraft paper.—C.J.W.

Pulping Wood. F. G. Rawling. Can. pat. 271,900 (June 28, 1927). Wood chips are submerged in and heated with an aqueous solution of a normal sulphite and a salt of a weakly ionized polybasic acid at a temperature of 100 to 125 degrees C., after which the chemical treating liquor is removed and the woody material is heated to a higher temperature.—A.P.-C.

Pulping Process. W. H. Howell, Jr., U.S. pat. 1,645,754 (Oct. 18, 1927). Cellulosic material is cooked with soda or sulphate or other liquor in a digester, the liquor being circulated by means of steam and the circulation is maintained by bleeding steam from the digester; the steam thus removed is utilized for heating the first effect of an evaporator, and the liquor, after completing the cook, is passed through the evaporator. An apparatus is described.—A.P.-C.

Process for Pulping Esparto. A. Schmidt. Fr. pat. 623,712. In order to pulp esparto where fresh water is not readily available, it is cooked in liquor prepared by dissolving caustic soda in seawater and adding 1 to 2 per cent of neutral sodium sulphite, which allows of reducing the proportion of caustic soda to 5 per cent or less of the weight of the esparto.—A.P.-C.

Process for Pulping Bamboo. A. H. Lynn and C. Leyst. Fr. pat. 623,651. Bamboo is reduced to chips about 1 to 5 mm. thick by 20 to 30 mm. long, boiled for about 10 hours at 95 to 100 degrees C., in milk of lime (containing 35 per cent calcium oxide on the weight of bamboo) in a spherical boiler which is rotated about 10 minutes at a time at hourly intervals, washed with water to remove as much lime as possible, ground in presence of water until it has a dendency to cake (about 90 to 120 minutes) or until it is practically completely defibered (about 3 to 4 hours), and then finally pressed under just sufficient pressure to ensure cohesion after subsequent drying. The semi-pulp this obtained can be converted into paper stock by boiling with 6 to 9 per cent of caustic soda (on the dry weight of bamboo) for about 4 hrs. at a pressure of 2 atmospheres, washing and bleaching at 40 degrees C. with 25 to 50 per cent of bleaching powder. The loss on boiling with lime is about 6 to 8 per cent and on grinding 9 to 10 per cent so that the yield of dry semi-pulp is about 80 to 85 percent. Cooking with caustic soda causes a loss of 16 to 20 per cent and bleaching a loss of five to fifteen per cent, so that the yield of unbleached pulp is about 60 per cent of the dry weight of original bamboo, while the yield of bleached pulp is about 45 to 50 per cent.—A.P.-C.

Downingtown Mfg. Co. Gets Decision

The infringement case of the Guardian Trust Company, trustee, and the Paper and Textile Machinery Company against the Downingtown Manufacturing Company for certain infringements claimed in the manufacture and sale of Kilberry suction rolls, has been decided in favor of the defendant.

The complete decision of the court follows:

In the United States Circuit Court of Appeals for the Third Circuit.

The Guardian Trust Company, Trustee, and The Paper & Textile Machinery Company, Appellants, *v.*

Downingtown Manufacturing Company, Appellee.

Downingtown Manufacturing Company, Appellant, *v.*

The Guardian Trust Company, Trustee, and The Paper & Textile Machinery Company.

Nos. 3838 and 3839. March Term, 1928.

Appeals from the District Court of the United States for the Eastern District of Pennsylvania.

(Filed December 1, 1928.)

Before Buffington, Woolley and Davis, Circuit Judges.

Davis, Circuit Judge:

This was a suit brought by the Guardian Trust Company, trustee, and the Paper & Textile Machinery Company, against the Downingtown Manufacturing Company, defendant, for the infringement of United States Letters Patent No. 1,025,822, for improvements in paper making machines, issued to William H. Millspaugh on May 7, 1912. The plaintiffs own the patent and charge that the defendant infringes it by the manufacture and sale of suction couch rolls with the knowledge and intent that they were to be used in machines embodying the invention of claims 2, 3 and 5 of the patent.

The trial court held that the patent was valid and infringed by the defendant in the installation of its suction rolls in a so-called "St. Regis" machine; but that it was not infringed by installations in which Nash rotary pumps were used. The plaintiffs appealed from so much of the decree as holds that the use of the defendant's rolls with Nash rotary pumps does not infringe and the defendant appealed from so much as holds the patent valid and infringed by the use of its rolls in a St. Regis machine.

The invention relates to improvements in Fourdrinier paper-making machines. This improves the machine, plaintiffs say, in operation and in the quantity and quality of its products.

For many years in the paper making industry, the wet pulp web, after it had been laid on the conveyor, called the making-wire, and drained by the successive actions of gravity, table rolls and flat suction boxes, was subjected to the wringing or squeezing action of a pair of large co-acting rolls, known as the top and bottom couch rolls, in order to press sufficient water out of the web or sheet and reduce it to the necessary firmness and dryness to enable it to be removed from the making-wire and undergo the usual, subsequent pressing, drying and calendering operations. This method of making the paper sheet was troublesome and slow, and left it in such condition as often to be damaged and broken when being run through the presses and dryers. No substitute was known, it is contended, for this risky and troublesome operation until Millspaugh "discovered that by including in the region of the couch roll a continuous draft through the sheet of a constant, large volume of air, by employment of a continuously positive-acting high-vacuum, he could do away with the top couch roll altogether, and eliminate from the sheet the moisture that previously had to be mechanically expressed, with as effective and far more advantageous results than had ever before been attained."

The three claims in issue, describe and claim in varying language a new combination in the Fourdrinier machine of a suction roll with a positive rotary vacuum pump which removes moisture from the wet paper web while on the making-wire by forcing large quantities of air uniformly through it in the region of the couch roll. The plaintiffs describe the results of the invention as follows:

"This invention transformed the Fourdrinier. The new moisture-removing operation, applied in the place of the former expressing operation, obtained an improved drying and consolidating effect, enabling the paper to be made not only without shock or stress in the wet sheet, but also in a highly satisfactory state of such uniform firmness and sufficiently low and uniform moisture content as to be better receptive to the ensuing pressing and drying operations and better adapted to be safely handled off the wire and passed through the presses and dryers, at the usual fast Fourdrinier speeds, or faster speeds. Thus the invention enabled paper to be made successfully, without the hazards accompanying the use of the old compressively acting couch rolls, at the normal or increased operating speeds. It was the first to accomplish any such result. It was the first machine ever known to the art by which the paper could be made without mechanical compression on the making-wire, at the then usual fast or even faster speeds, as a properly made wet paper sheet in condition to be removed from the wire and to withstand the normal pressing and drying operations at those speeds."

While the web or sheet was running along the making-wire, much of the water, as above stated, was immediately drained off by gravity through the meshes of the wire. As the wire, carrying the solution of water and fiber, ran forward, over the supporting table rolls, gravity continued to take water out of the sheet, but as more of the water was drained off and the solution became thicker, and the pulp particles adhered more closely together, the action of gravity alone was not sufficient to overcome capillary attraction and remove more water, and so some other agency was required. This was found in the compressive action of the top and bottom couch rolls. These, however, were unsatisfactory because their heavy pressure frequently injured the web. Thereafter the top roll was eliminated and reciprocating pumps attached to a group of flat suction boxes were used to draw a current of air through the web.

Marble D. Keeney, of Antioch, California, patented a suction-box for paper machines in 1897 (No. 581,733). These boxes or rolls were placed on the market and Curtis and Brother of Newark, Delaware, purchased one in 1902. This took the place of the lower couch roll. It was used in connection with a Dean reciprocating pump. As a consequence the top couch roll was removed and this suction roll and pump were used without the upper couch roll for eight years and so successful was this in extracting water and moisture from the web that the web was self-sustaining and passed over the gap between the making-wire and the felt screen or receiver without support. The testimony clearly establishes that Curtis secured Millspaugh's "desired result." When the old Dean pump was worn out and had to be renewed, they substituted a Connersville rotary pump for it, but this produced no change in the mode of operation, the grades of paper made or construction of machine used.

Claim 5 is the most specific. It has two pieces of mechanism, the revolving suction roll and a positive rotary pump.

But both of these were old. The patent No. 895,238 issued to Millspaugh August 4, 1908, was for "new and useful Improvements in Suction Rolls for Paper-Machines." He adopted the suction roll of that patent for use in the patent in suit. On page 2 at line 104 he said: "I prefer at present the construction of suction-roll shown and described in my U. S. Patent No. 895,283, dated August 4, 1908, though I do not limit myself thereto." The suction roll is also shown in other patents. In the patent, No.

426,089, issued to Young and Davis, August 22, 1890, a suction roll mounted at the delivery end of the making-wire on a Fourdrinier machine is disclosed. The patentee stated that the object of the improvement was "to lessen the wear of the wire and produce a suction device that will effectually remove moisture from the pulp while upon said wire." The British patent, No. 15,669 (1887) issued to Black also disclosed a suction-roll mounted at the delivery end of the making-wire. These rolls were not commercially successful, but Millspaugh said this was due to imperfections in mechanical construction and operation which he proposed to remedy in his first patent. In the specifications in that patent he said:

"As the pulp-conveying web passes over or partially around the roll, the latter being perforated or fenestrated, the extraction of moisture is effected by suction or creation of a vacuum inside the roll, which for that purpose contains a non-rotative suction box or chamber in communication with a vacuum pump or exhaust apparatus; the open top of said suction-box being in close contact with the interior surface of the roll. Although these suction-rolls, revolving with the same surface speed as that of the pulp-conveying web possess the advantage of avoiding friction and wear on the wires or tearing of the felts, yet they have not heretofore been brought to a satisfactory degree of perfection, either in mechanical construction or character of operation. A material defect has been the difficulty of maintaining the suction-box in air-tight contact with the roll, so as to effectively utilize the suction, while at the same time obtaining the exact degree of pressure desired and preventing the box from becoming locked to the roll, especially under influence of a heavy suction or substantial vacuum, . . . Another usual deficiency in this class of devices, has been the lack of convenient means for setting the suction-box at different angular positions in the roll or cylinder, in order to adapt the latter to the line of travel of the pulp-conveying web," etc.

He did not claim to have originated the idea of extracting moisture from the web by means of the suction-box, but he did claim the discovery of the means of eliminating the defects from the box so as to make it effective.

At the time of Millspaugh's application, the positive rotary pump had been manufactured for some years by two companies, The Connersville Blower Company of Connersville, Indiana, and the Roots Pump Company of the same place. The pumps of these companies differed only in the shape of their impeller blades. The Connersville Blower Company pump, "having oppositely-revolving cycloidal impellers," was adopted by the patentee and thereafter referred to by him as the positive rotary pump.

Millspaugh, therefore, brought together two old elements and applied them to the Fourdrinier machine to extract water and moisture from the sheet by drawing large volumes of air uniformly through it. Did this constitute invention? The defendant says that it did not because the combination of these two elements in the natural development of the art was what might be expected from a skilled mechanic.

The need of a continuous volume of air passing through the web to extract moisture from it was recognized long before Millspaugh. To accomplish this, equalizing chambers were used in connection with reciprocating pumps attached to flat suction boxes located between the tube-rolls and the delivery end of the conveyor or making-wire. This eliminated the pulsations of the pumps and maintained a uniform vacuum. In his specification in the patent in suit, Millspaugh recognized this fact and said:

"Reciprocating piston pumps are commonly employed in Fourdrinier machines, and such pumps cannot produce uniform suction or air current except by the use of very large vacuum-equalizing or receiving tanks in connection with such pumps which are very cumbersome and open to many objections and seldom if ever accomplish the desired result."

The positive rotary pump, defendant says, was not only well known, but had gone into actual use in the paper making machine art as a vacuum pump for the purpose of furnishing a substantial vacuum and a constant uniform draft of air through the sheet. It cites the uses by F. W. Bird & Son, duPont, and MacAndrews & Forbes as authority for these statements. They used Roots positive rotary pumps or "blowers" to create a vacuum in making paper. Bird & Son made thick felt paper. The others made paper or pulp kegs. Plaintiffs say, that these uses are not anticipatory because they were used "for non-analogous service as low duty exhausters in non-analogous machines," and not in connection with Fourdrinier machines; that the Bird "cylinder mold was only a frail mold which could not have sustained any great pressure"; and that all the other machines used by duPont and MacAndrews & Forbes were operated at a very low pressure.

All this may be true, but the fact is that these positive rotary pumps were used to create a uniform vacuum in making paper. While the machines might have been operated at low pressure and in consequence produced a low vacuum, yet this is only a matter of degree, not a difference in principle of operation and shows the recognition and practical solution of the problem contained in the invention. The fact of usage on Fourdrinier machines as distinguished from other machines did not in itself constitute invention.

Like others, Millspaugh saw the need of a uniform vacuum and was looking for a pump best fitted to produce it. He inquired of the Connersville people about their pumps and they showed him a positive rotary pump, having "oppositely-revolving cycloidal impellers" which he took and used on a Fourdrinier machine. We are satisfied that in the state in which Millspaugh found the art the substitution, on a Fourdrinier machine, of a positive rotary pump for a reciprocating pump with or without an equalizing tank did not amount to patentable invention.

The part of the decree holding the claims in suit valid and infringed is reversed and the part holding them not infringed is affirmed.

Buffington, *J.*, Dissenting.

From about 1803 the paper making device of Fourdrinier continued in use without change or improvement for one hundred years. An improvement was then made by a firm at Newark, Delaware, which made high grade paper of marked tensile strength. This improvement in paper of such strength made no change in the Fourdrinier machine practice in making the flimsy paper of the newspaper art. The subsequent great change and improvement of the Fourdrinier machine by which it is speeded up to continuously and without break handle the forming web of a great newspaper roll—an improvement which has tremendously increased the speed, sheared the process of breakdowns with consequent delays, and greatly increased the output—came through Millspaugh and no one else. Had the art stopped with the improvement in the mill at Newark, Delaware, the newspaper art would not have been changed or improved. The practical newspaper art has evidenced its appreciation of Millspaugh's improvement by the general licensing under his patent, and because this decision fails to reward him for his inventive improvement, I record my earnest dissent.

Minor M. Beckett Dead

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 5, 1928.—Minor Milliken Beckett, aged 32, president of the Beckett Paper Company, of Hamilton, died last night in the Jewish Hospital, Cincinnati, from injuries received in a fall from the third floor window of his Hamilton home, late Sunday night. Mr. Beckett's back was broken. The fall was due to dizziness, with which he was overcome while standing at the window to obtain air after a sudden attack of illness.

Umpqua Pulp & Paper Co. Chartered

PORTLAND, Ore., November 28, 1928.—The Umpqua Pulp and Paper Company has been incorporated in Oregon by Fred Gronnert, Wm. C. Ralston and T. D. McMahon, with a capital stock of $100,000.

Tappi Membership Still Growing

Inasmuch as the new members added to the Technical Association roster between now and the end of the year are to be billed only for 1929 dues the following list includes the final group for 1928. The Association is continuing to grow rapdly and has now reached 878. More than 160 new members joined in 1928.

In addition to the new individual members there are fourteen new corporate members as follows:

Newton Falls Paper Company, Newton Falls, N. Y.
Bryant Paper Company, Kalamazoo, Mich.
Cellulosa Cubana, Tunica, Cuba.
Holmes Bruks A/B Norrköping(Sweden.
Fox River Paper Company, Appleton, Wis.
Brittains, Ltd., Cheddleton, England.
Millers Falls Paper Company, Millers Falls, Mass.
District of Columbia Paper Co., Washington, D. C.
Scott Paper Company, Chester, Pa.
Keyes Fibre Company, Waterville, Maine.
Mitsubishi Paper Mills, Tokyo, Japan.
Cooke & Nuttall, Ltd., Horwich, Haws, England.
Powell River Paper Company, Ltd., Powell River, B. C.
Kramfors A/B—Kramfors, Sweden.

NEW MEMBERS

Henning Arbo, chief chemist, British Columbia Pulp and Paper Mills, Ltd., Woodzbre, B. C.

G. L. Bayer, designer, V. D. Simons, 2021 Tribune Tower, Chicago.

M. P. Bhargava, assistant research officer, Forrest Research Institute, Dehra Dun, India.

F. B. Bjornlund, general superintendent, Brown Corporation, La Tuque, P. Q.

N. W. Black, chemist, Inland Empire Paper Company, Millwood, Wash.

W. J. Casidy, in charge of technical service, American Writing Paper Company, Inc., Holyoke, Mass.

D. R. Charleson, superintendent, Grays Harbor Pulp Company, Hoquiam, Wash.

J. B. Clarke, chemist, McDowell Paper Mills, Manayunk, Pa.

G. C. Dunn, secretary, Dunn Sulphite Paper Company, Port Huron, Mich.

C. L. Durkee, salesman, designer and draftsman, D. J. Murray Manufacturing Company, Wausau, Wis.

R. A. Gormley, chief chemical engineer, United Paper Board Corporation, Lockport, N. Y.

Sven Hanson, engineer, Management Engineering and Development Company, Dayton, Ohio.

C. E. Hartford, jr., junior chemical engineer for U. S. Bureau of Standards, at Iowa State College, Ames, Iowa.

H. M. Holmes, assistant chief, mill control laboratory, Hammermill Paper Company, Erie, Pa.

E. P. Ketchum, groundwood superintendent, Powell River Company, Ltd., Powell River, B. C.

F. J. Lang, chief chemist, Tonawanda Paper Company, Inc., North Tonawanda, N. Y.

E. G. Lindeberg, superintendent, Dominion Paper Company, Kinsey Falls, P. Q.

E. H. Lougheed, research chemist, Manitoba Paper Company, Ltd., Pine Falls, Man.

G. S. Macdonald, president, Lockwood Trade Journal Company, Inc., New York, N. Y.

R. A. McInnis, general manager, Anglo-Canadian Pulp and Paper Mills, Ltd., Quebec, P. Q.

C. A. Newhall, chemical engineer, 6303—21st avenue, N. E., University Station, Seattle, Wash.

J. C. Nutter, Nashwaak Pulp and Paper Company, Ltd., St. John, N. B.

G. A. Peterson, engineer, International Paper Company, New York, N. Y.

T. M. Pomeroy, general superintendent, Z. & W. M. Crane, Inc., Dalton, Mass.

R. W. Richardson, junior chemist for U. S. Bureau of Standards, at Iowa State College, Ames, Iowa.

L. J. Rioux, acid maker, Fraser Companies, Ltd., Edmundston, N. B.

C. W. Rivise, patent attorney, 707 Lawyers' Building, Philadelphia, Pa.

Donald Ross-Ross, engineer, Howard Smith Paper Mills, Ltd., Cornwall, Ont.

L. S. Sabatke, assistant paper maker for U. S. Bureau of Standards, at Iowa State College, Ames, Iowa.

C. A. Shubert, superintendent of soda mill and electrolytic bleach plant, Dill & Collins Company, Philadelphia, Pa.

J. F. Shuman, chemist, Fort Wayne Corrugated Paper Company, Hartford City, Ind.

S. M. Silverstein, director, industrial research division, Bigelow, Kent, Willard & Company, Boston, Mass.

L. S. Simons, sales engineering department, Norton Company, Worcester, Mass.

Werner Tuerk, assistant foreman, Hammermill Paper Company, Erie, Pa.

F. D. Turner, salesman, A. M. Meincke, Inc., 7 South Dearborn St., Chicago, Ill.

H. E. Wehr, chemist, Sylva Paperboard Corporation, Sylva, N. C.

L. L. Wilson, superintendent, Morris Paper Mills, Morris, Ill.

W. R. Winn, production manager, Mosinee Paper Mills Company, Mosinee, Wis.

E. A. Worm, jr., Bureau of Tests, International Paper Company, Glens Falls, N. Y.

Indiana Paper Market Active

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 26, 1928—The paper trade here is busily selling for the Christmas trade. From all indications business during this holiday season will be better than it was a year ago. From the jobbers' viewpoint, the situation is improving, for mills are bidding for business and many jobbers are taking advantage of concessions in the price of many different grades of paper. This is particularly true in news print. Prices seem lower than is warranted and buyers are beginning to canvass around, evidently under the impression that prices will slump some more. Incidently, they are holding their stocks to the absolute minimum. And this is in spite of the fact that mill representatives here report short mill stocks and some of the mills closed down entirely until the market becomes more stabilized.

Jobbers in most lines are having a difficult time in building up the individual order, but these orders are more numerous and business in many lines has not suffered. The consumers are converted to the idea of letting the jobber carry the load and this policy will likely be maintained during the winter, at least until after the inventory period.

A few price concessions have been reported by mills in the fine paper market, though the tendency has not become alarming. As the larger advertisers get ready to put out their Christmas literature, there is more interest reported at local wholesale houses. A good business is also reported in glassine products, most of it for the holiday trade.

Indiana confectioners are buying their requirements and the sale of heavy box paper is reported good. Printers here report a slight increase in business, but the volume is not what they would like. As is common with other buyers, the printers are buying only their immediate requirements.

NATIONAL POWER SHOW

(*Continued from page 33*)

instead of an arbitrary combination. This reduces the purchase price, at the same time permitting the best application of the crane to the job.

F. L. Smidth & Co., Inc.

Lenix Short Belt drive and the new Moler Insulating Brick are shown by F. L. Smith & Co., Inc., of New York.

The special feature of the exhibit is one of the standard Lenix Drives used in connection with a motor driven pulley, the pulley being equipped with Prony Brake by means of which is given a practical demonstration of the automatic action of the Lenix in responding to variations in the load.

Taylor Instrument Companies

The Taylor Instrument Companies, of Rochester, N. Y., are displaying the following instruments: Industrial Thermometers; Recording Thermometers and Pressure Gauges; Index (Dialtype) thermometers; Mercury Column Vacuum Gauges, Indicating and Recording Pyrometers, and Engraved Stem Thermometers for testing.

The Taylor company is also featuring a new flush type, mounted, mercury column vacuum gauge which is designed for panel board mounting.

Timken Roller Bearing Co.

One of the features of the exhibit of the Timken Roller Bearing Company, of Canton, Ohio, is a mechanical display portraying the wide spread use of Timken Bearings in all sorts of industrial and automotive equipment.

There is also a bearing of the type used on steel mill roll necks, and a complete railway bearing and mounting. The latter is cut away to show the mounting of the bearing.

The rest of the exhibit consists of an assortment of bearings of types suitable for different applications.

Superior Paper Plant Destroyed by Fire

INDIANAPOLIS, Ind., December 3, 1928.—Three buildings owned and occupied by the Superior Paper Products Company in the northeast section of Fairmount, Ind., were destroyed by fire of unknown origin recently with a loss estimated at more than $100,000. Storage buildings located nearby and occupied by an oil company were saved when the wind veered as the fire gained headway. These tanks all were stored with gasoline.

It was the second time in two years that fire has wiped out the paper plant. One of the buildings, all of which were made of heavy stone, was recently completed and a quantity of new machinery had been installed. This also was a total loss.

Two of the buildings, older, were razed, while the new building was gutted by the flames, which gained such headway that the Fairmount fire department and two departments from Marion, Ind., that were called to the scene, could not cope with the situation. The blaze was discovered by persons living in the vicinity. No night watchman is employed at the plant, but employees worked until 10 o'clock at night, the night of the fire.

Nothing was saved in any of the buildings. J. W. Williams of Jasonville, Ind., president of the company, could not be reached for a statement, and it is not known whether the plants will be rebuilt. About 100 employees are out of work. J. Willens, of Marion, is the plant manager.

A large quantity of paper products, which had been manufactured in anticipation of a large spring business and stored in the warehouse, was destroyed. It is believed that spontaneous combustion, originating in the warehouse, might have been the cause of the fire.

Paper Making Exhibit Donated to Museum

PORTLAND, Ore., November 28, 1928.—The St. Helens Pulp and Paper Company, St. Helens, Ore., has donated a paper making exhibit to the Museum Association of Oregon in Portland. Samples of chemicals employed in paper-making and of hemlock, examples of finished paper products are included in the exhibit.

Waxed Paper Rules Effective January 1

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 3, 1928.—Rules of business conduct adopted by the waxed paper industry at a trade practice conference last June and acted on by the Federal Trade Commission in October, will not become effective until January 1, 1929. An extension of time has been granted at the request of the American Waxed Paper Association.

The rules at first were to have become effective October 15. Extension was granted until November 15, and now a second extension is granted so that the industry may have time in which to make proper arrangements and adjust itself to the new conditions.

Fourteen rules were adopted by the industry at the conference. Nine of them were affirmatively approved by the commission. They related to the following: inducing breach of contract, imitation of trade-marks or trade names, enticement of employees, defamation of competitors or disparagement of competitors' goods, threats of suit for patent or trade-mark infringement, use of inferior materials, discrimination in price by means of split shipments, repudiation of contracts, and deviation from standards.

A number of other rules adopted by the industry were accepted by the commission only as expressions of the trade.

Kalamazoo Vegetable Parchment Improvements

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 3, 1928.—The Kalamazoo Vegetable Parchment Company will soon be able to operate its two paper mills, parchment, waxing and printing plants and Glendale pulp division by power generated in one power house, thus effecting a very decided saving, according to Jacob Kindleberger, president.

A tunnel is now being dug from the main power plant at mill No. 2 to mill No. 1, which will carry the steam pipe lines for the transmission of the steam. As soon as completed and properly connected up, the original power plant at mill No. 1 will be discontinued.

This tunnel is to be five feet in diameter and nearly a half mile in length. It is laid in a zig-zag fashion, thus providing for expansion, which is dangerous in a straight line steam pipe. The cost of this improvement will exceed $30,000.

St. Regis Staff Transfer

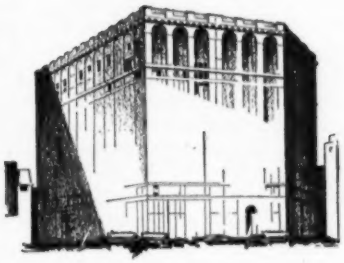
[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., December 1, 1928.—Announcement is made of the transfer of Carl B. Martin, secretary and treasurer of the St. Regis Paper Company, from this city to the New York offices of the company. Clerical help assisting Mr. Martin will also be removed to New York City within the next two weeks. The transfer of Mr. Martin is another step in the centralization of the company's offices. The New York offices of the firm are located with the other offices of the Carlisle interests on Broad St.

Mr. Martin has been associated with the St. Regis Paper Company for the past fifteen years. He is also secretary and treasurer of the Norwood and St. Lawrence Railroad and treasurer of the Ontario Specialties Inc., of this city. He does not plan to move his family at this time.

Dominion Boxboard Changes Staff

Dominion Boxboards, Ltd., of Toronto, Ont., announce that Arthur Garrison, superintendent of their board mill, has resigned and is going to take charge of a mill in Thompson, N. Y. W. A. Crawford, formerly general superintendent of the Standard Paper Box Company board mills at Kalamazoo, Mich., will in future have charge of the boxboard manufacturing end. Mr. Crawford is considered one of the best board mill superintendents in the United States, and has an enviable reputation for making high grade boards.



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From every section of America, and from foreign countries, buyers come to the Fifth Avenue Building. Because in this building, on one buying trip, they can fill the greater part of their seasonal requirements. The offices and display rooms of leading manufacturers are to be found here. Men's wear, women's wear, fabrics, gloves, gifts, toys, novelties, pottery, paper and kindred lines are represented.

The Fifth Avenue Building is accessible from any part of the city. Buses and surface cars pass the door. Two elevated lines are nearby. It is ten minutes by subway from the Pennsylvania Station, thirteen from Grand Central. It is a few minutes from the shopping district in one direction, from the financial district in another.

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The Thermix Air Heater is the modern money-saving way to dry paper, etc.; to pre-heat air to increase the efficiency of boilers, or to heat buildings.

Positively cannot injure the most delicate product, as the hot air supplied contains no soot or gas.

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Trade Mark Department

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The following are trade mark applications pertinent to the paper field pending in the United States Patent Office, which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade Mark Company, Barrister Bldg., Washington, D. C., trade-mark specialists. As an additional service feature to its readers, PAPER TRADE JOURNAL gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.

BRONX SPECIAL BRAND—No. 266,414. Bronx Jobbing House, New York City. For blank books.

WINDO-SHO—No. 270,434. Mid-States Gummed Paper Company, Chicago, Ill. For paper tape.

YORKTOWNE—No. 268,721. S. Walter Inc., Philadelphia, Pa. For wrapping paper cardboard, tissue paper, writing paper, bond paper, ledger paper, mimeograph paper, tablet paper, blotting paper, cover paper, and toilet paper.

JEFFERSON—No. 269,344. Caldwell-Sites Company, Roanoke, Va. For school tablets, composition and note books, loose-leaf binders; filler paper; writing paper, typewriter paper, envelopes; pound paper; paper clips, and pencils.

GRAPHIC-WRITE—No. 271,548. Graphite Paper Company, Chicago, Ill. For ink ribbons and carbon paper.

SUNWORTHY WALLPAPER—No. 273,348. Stauntons Ltd., Toronto, Ont., Canada. For wall paper.

Labor Union Asks Revision of Old Custon

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 4, 1928.—The Holyoke Central Labor Union at its last meeting appointed a special committee to meet with manufacturers, especially paper manufacturers, to protest, and if possible secure revision of a custom it was stated to be growing of discharging employees who have reached the age of 60 years. In some concerns it was reported to the Central Labor Union, notice has already been given a number of employees that their services were no longer required on account of having reached this age. Union men assert that often the older men are more valuable than the younger by reason of their experience and steadiness.

Witham Patents New Device

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., November 24, 1928.—George S. Witham, Sr., superintendent of the plant of the Union Bag and Paper Company, was this week granted a patent on a new wood splitting device by the United States Patent office. The device consists of a frame with an endless chain which carries the wood to the splitting discs. Part interest in the new device has been acquired by the Ramar Syndicate Company, of Norfolk, Va. Several inventions perfected by Mr. Witham in recent years are being widely used by paper mills in different sections of the country.

Deliver Piling for Hammermill's New Mill

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 1, 1928.—With the new pulp mill of the Grays Harbor Pulp and Paper Company now shipping pulp continuously, work is speeding up on the new plant for the Hammermill Paper Company on the same site adjacent to the pulp mill. Piling is being transported on both day and night shifts by ten trucks and trailers. Approximately two-thirds of this piling work is completed. The hauling work consumed about two months.

New Hammermill Agent for Akron

ERIE, Pa., December 3, 1928.—The Hammermill Paper Company announces the appointment of the Alling and Cory Company of Akron, Ohio, as a Hammermill agent.

New Plant for Reedsport, Ore.

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 1, 1928.—The Umpqua Pulp and Paper Company, articles of incorporation for which were filed recently, has announced intention of building a mill on Dewar's Island at Reedsport, Ore. Plans are being drawn for a modern plant with a daily capacity of 100 tons of sulphite pulp of high grade to be produced and shipped for eastern markets and Japan.

The island which is the site for the proposed mill contains 150 acres of industrial sites and has deep water frontage. It lies at the confluence of the Umpqua and Schofield rivers. The Southern Pacific Railroad runs a line over the island.

Ample water supply has been arranged for by water filings on Tahkenitch Lake. Sufficient timber holdings are available to the company to insure mill operation for many years. Management of the mill has already been chosen but no public announcement is yet authorized.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 3, 1928—Charles A. Shaw, president of Whitney Bros, Inc., and head of the twine department, is confined to his home by an injury to his spine, caused by a fall from a step ladder at his residence, Wednesday evening, November 28.

James Graham, son of James J. Graham, of the James J. Graham Paper Company, Cambridge, Mass., is on the danger list at the Quincy City Hospital, owing to injuries received in an automobile accident near Merrymount Park, Quincy, Thursday morning.

E. J. Smith, manager of the Boston office of the United Paperboard Company, Inc., is expected to return today after a visit to his family in Reading, Pa., for Thanksgiving.

Hoquiam Pulp Shipped

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 1, 1928.—The first lot of pulp to be dispatched from the Grays Harbor Pulp and Paper Company's new plant at Hoquiam, Wash., to the Japanese market, cleared the harbor late in November on board the steamer Yayoi Maru. The vessel carried approximately 550 tons of pulp and about 4,000,000 feet of lumber, which was also loaded at this port.

The initial lot for oriental delivery will be followed within a few days by 630 tons which has been placed aboard the Japanese steamer Malta Maru now being loaded for a trip to Japan.

The largest shipment of pulp to date from the new plant, however, is being stowed abord the Norton & Lilly steamer, A. L. Kent, for delivery to Portland, Me.

Strathmore Mill Workers Receive Turkeys

[FROM OUR REGULAR CORRESPONDENT]

WORONCO, Mass., December 4, 1928.—The workers of the Strathmore Paper Company received 500 turkeys this year according to the custom introduced by President Horace A. Moses about 36 years ago. When he first began only a dozen or two were required. Only those who are householders received the birds. A canvass is taken to determine the size of the family and the size of the birds as far as possible corresponds with the size of the family. Many workers live in Russell and Huntington but they receive birds just the same.

Moran Resigns As Superintendent of Luzerne Mill

[FROM OUR REGULAR CORRESPONDENT]

HADLEY, N. Y., December 1, 1928.—Patrick Moran has tendered his resignation as superintendent of the Luzerne Paper Corporation to become effective immediately. He has supervised manufacturing activities at the local plant for the past four years and has also served as vice president of the firm. His successor has not yet been named. Mr. Moran plans a much needed rest before resuming his affiliations with the paper trade.

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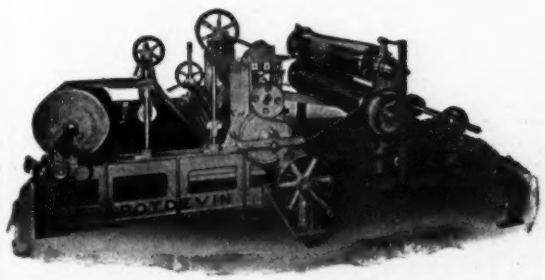

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Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 1, 1928

SUMMARY

Cigarette paper ..... 284 cs.
Wall paper ..... 1 crate, 175 bls., 28 cs.
Paper hangings ..... 94 bls., 2 cs.
News print ..... 764 rolls, 9 bls.
Printing paper ..... 683 rolls, 12 bls., 225 cs.
Writing paper ..... 4 cs.
Packing paper ..... 28 cs.
Greaseproof paper ..... 37 cs.
Wrapping paper ..... 27 rolls, 1 bls., 84 cs.
Drawing paper ..... 61 cs.
Filter paper ..... 93 bls., 35 cs.
Stencil paper and ink ..... 92 cs.
Gallic paper ..... 1 cs.
Photo paper ..... 17 cs.
Colored paper ..... 89 cs.
Decalcomania paper ..... 39 cs.
Tissue paper ..... 84 cs.
Tracing paper ..... 1 cs.
Metal paper ..... 3 cs.
Baryta coated paper ..... 132 cs.
Surface coated paper ..... 52 cs.
Painted paper ..... 9 cs.
Sulphate paper ..... 454 rolls
Envelopes ..... 31 cs.
Straw board ..... 144 rolls
Miscellaneous paper ..... 1226 rolls, 25 bls., 341 cs.

CIGARETTE PAPER

Gluckman & Strauch, De Grasse, Havre, 2 cs.
British American Tobacco Co., Franconia, Liverpool, 67 cs.
British American Tobacco Co., Homeric, Southampton, 50 cs.
Standard Products Corp., Paris, Havre, 23 cs.
P. J. Schweitzer, Pres. Hayes, Marseilles, 142 cs.

WALL PAPER

A. C. Dodman, Jr., Inc., Pr. Harding, Bremen, 7 bls.
A. C. Dodman, Jr., Inc., Franconia, Liverpool, 1 cs.
F. J. Emmerich, Deutschland, Hamburg, 94 bls., 1 crate, 8 cs.
Bendix Paper Co., Deutschland, Hamburg, 8 cs.
S. Stern Stiner, Inc., Deutschland, Hamburg, 2 bls.
F. J. Emmerich, Celtic, Liverpool, 21 bls., 2 cs.
W. H. S. Lloyd & Co., American Merchant, London, 8 cs.
A. C. Dodman, Jr., Inc., Homeric, Southampton, 50 bls.
W. H. S. Lloyd & Co., Homeric, Southampton, 1 ble.
J. E. Bernard & Co., Homeric, Southampton, 1 cs.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Samaria, Liverpool, 14 bls.
A. C. Dodman, Jr., Inc., Celtic, Liverpool, 68 bls.
Whiting & Patterson Co., Inc., Franconia, Liverpool, 2 cs.
W. H. S. Lloyd & Co., Minnewaska, London, 12 bls.

NEWS PRINT

Parsons & Whittemore, Inc., Columbus, Bremen, 292 rolls.
Ossian Ray, Gripsholm, Gothenburg, 94 rolls, 9 bls.
Guaranty Trust Co., Stavangerfjord, Honefos, 378 rolls.

PRINTING PAPER

Martin & Bechtold, Columbus, Bremen, 29 cs.
Dingelstedt & Co., Columbus, Bremen, 9 cs.
Judson Freight F'd'g Co., Pr. Harding, Bremen, 12 bls.
Walker Goulard Plehn Co., Pr. Harding, Bremen, 31 cs.
H. Reeve Angel & Co., Inc., Pr. Harding, Bremen, 86 cs.
P. Puttman, Pennland, Antwerp, 21 cs.
P. C. Zuhlke, Pennland, Antwerp, 7 cs.
Perkins Goodwin & Co., Deutschland, Hamburg, 683 rolls.
E. Dietzgen & Co., Deutschland, Hamburg, 40 cs.
F. L. Kramer & Co., American Merchant, London, 2 cs.

WRITING PAPER

Japan Paper Co., Franconia, Liverpool, 2 cs.
Globe Shipping Co., Franconia, Liverpool, 1 cs.
H. Reeve Angel & Co., Inc., Minnewaska, London, 1 cs.

PACKING PAPER

Haule Wax Paper Manfg. Co., Deutschland, Hamburg, 28 cs.

GREASE PROOF PAPER

Central Union Trust Co., Deutschland, Hamburg, 37 cs.

WRAPPING PAPER

S. Gilbert, Pr. Harding, Bremen, 2 cs.
Standard Products Corp., Pennland, Antwerp, 27 rolls, 2 cs., 1 bls.
Birn & Wachenheim, Pennland, Antwerp, 75 cs.
J. H. Schroeder Banking Corp., Deutschland, Hamburg, 5 cs.

DRAWING PAPER

International F'd'g Co., Carlier, Antwerp, 42 cs.
State F'd'g & Shipping Co., Deutschland, Hamburg, 1 cs.
C. Schleicher Schull Co., Deutschland, Hamburg, 7 cs.
H. Reeve Angel & Co., Inc., Minnewaska, London, 9 cs.
Keuffel & Esser, Alaunia, Southampton, 2 cs.

FILTER PAPER

A. Giese & Son, Deutschland, Hamburg, 4 cs.
H. Reeve Angel & Co., Inc., Minnewaska, London, 16 cs.
E. H. Sergent & Co., Alaunia, Southampton, 2 cs.
J. Manheimer, Homeric, Southampton, 93 bls.
H. Reeve Angel & Co., Inc., Homeric, Southampton, 13 cs.

STENCIL PAPER AND INK

Arlac Dry Stencil Co., Deutschland, Hamburg, 92 cs.

GALLIC PAPER

Keuffel & Esser, Alaunia, Southampton, 1 cs.

PHOTO PAPER

J. H. Schroeder Banking Corp., Columbus, Bremen, 10 cs.
Medo Photo-Supply Co., Minnewaska, London, 7 cs.

COLORED PAPER

P. H. Petry & Co., Columbus, Bremen, 4 cs.
S. Gilbert, Pr. Harding, Bremen, 26 cs.
J. Beckhard, Pr. Harding, Bremen, 8 cs.
Borden Riley Paper Co., Pennland, Antwerp, 8 cs.
E. Dietzgen & Co., Deutschland, Hamburg, 43 cs.

DECALCOMANIA PAPER

G. W. Sheldon & Co., Pr. Harding, Bremen, 24 cs.
Phoenix Shipping Co., Pr. Harding, Bremen, 3 cs.
B. F. Drakenfeld & Co., Samaria, Liverpool, 8 cs. (Duplex); 4 cs. (Simplex).

TISSUE PAPER

Old Master Paper & Pulp Co., Deutschland, Hamburg, 59 cs.
G. W. Sheldon & Co., Minnewaska, London, 3 cs.
P. J. Schweitzer, Pr. Hayes, Marseilles, 22 cs.

TRACING PAPER

Keuffel & Esser Co., Deutschland, Hamburg, 1 cs.

METAL PAPER

Rohner Gehrig & Co., Deutschland, Hamburg, 3 cs.

BARYTA COATED PAPER

Globe Shipping Co., Pr. Harding, Bremen, 103 cs.
J. H. Schroeder Banking Corp., Pr. Harding, Bremen, 29 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Pennland, Antwerp, 47 cs.
P. H. Petry & Co., Deutschland, Hamburg, 3 cs.
Globe Shipping Co., Deutschland, Hamburg, 2 cs.

PAINTED PAPER

American Exchange Irving Trust Co., De Grasse, Havre, 9 cs.

SULPHATE PAPER

Insight Paper Co., Stavangerfjord, Oslo, 454 rolls.

ENVELOPES

Globe Shipping Co., Columbus, Bremen, 31 cs.

STRAW BOARD

A. Vuyk, Westerdyk, Rotterdam, 144 rolls.

MISCELLANEOUS PAPER

Arkell Safety Bag Co., Minnequa, Gothenburg, 451 rolls.
C. G. Winans Co., Minnequa, Gothenburg, 717 rolls, 20 bls.
Crepe Kraft Co., Minnequa, Gothenburg, 58 rolls, 5 bls.
A. L. Diament & Co., De Grasse, Havre, 3 cs.
W. R. Noe & Son, De Grasse, Havre, 4 cs.
Japan Paper Co., Gripsholm, Gothenburg, 10 cs.
J. E. Anderson, Gripsholm, Gothenburg, 7 cs.
Gevaert Co. of America, Pennland, Antwerp, 111 cs.
Keller Dorian Paper Co., Paris, Havre, 14 cs.
Standard Products Corp., Paris, Havre, 134 cs.
Standard Products Corp., Westerdyk, Rotterdam, 50 cs.
J. Beckhard, Westerdyk, Rotterdam, 6 cs.

RAGS, BAGGINGS, ETC.

Union Bank & Trust Co., Marengo, Newcastle, 138 bls. rags.
E. J. Keller Co., Inc., Marengo, ——, 112 bls. flax waste.
Darmstadt Scott & Courtney, Marengo, Antwerp, 81 bls. bagging.
Darmstadt Scott & Courtney, Marengo, Antwerp, 73 bls. tares.
A. Bloch & Co., Marengo, Antwerp, 121 bls. threads.
Katzenstein & Keene, Inc., Marengo, Antwerp, 71 bls. new cuttings; 82 bls. tares; 32 bls. rags.
Leigh Textile Co., Marengo, Antwerp, 338 bls. cotton waste.
E. Butterworth & Co., Inc., Boston City, Bristol, 245 bls. paper stock.
French American Banking Corp., Rosandra, Bari, 54 bls. rags.
National City Bank, City of Dundee, Alexandria, 80 bls. rags.
Interstate Trust Co., City of Dundee, Alexandria, 120 bls. rags.
E. J. Keller Co., Inc., City of Dundee, ——, 396 bls. rags.
Jaffe Products Co., Nordbo, Havana, 62 bls. rags.
American Exchange Irving Trust Co., Carlier, Antwerp, 96 bls. bagging.
Castle & Overton, Inc., Carlier, Antwerp, 105 bls. rags.
Bank of The Manhattan Co., Carlier, Antwerp, 180 bls. rags.
E. J. Keller Co., Inc., Carlier, ——, 68 bls. rags.
Royal Manfg. Co., Tomalva, Antwerp, 70 bls. thread waste.
Star Woolen Co., Tomalva, Antwerp, 30 bls. rags.
Amtory Trading Co., Tomalva, Antwerp, 48 bls. flax waste.
Equitable Trust Co., Samaria, Liverpool, 24 bls. rags.
Interstate Trust Co., Deutschland, Hamburg, 35 bls. rags.
W. Schall & Co., Deutschland, Hamburg, 86 bls. jute waste.
State Bank & Trust Co., Deutschland, Hamburg, 7 bls. rags.
Bank of The Manhattan Co., Polonia, Danzig, 253 bls. bagging.
Katzenstein & Keene, Inc., Minnewaska, London, 15 bls. paper stock.
R. F. Downing & Co., Winona County, Manchester, 121 bls. paper stock.
E. Butterworth & Co., Inc., Winona County, Manchester, 304 bls. bagging.
Darmstadt Scott & Courtney, Winona County, Manchester, 156 bls. bagging.
E. J. Keller Co., Inc., Winona County, ——, 67 bls. bagging.
E. J. Keller Co., Inc., Westerdyk, ——, 23 bls. rags.
Castle & Overton, Inc., De Grasse, Havre, 1 ble. rags.
Castle & Overton, Inc., Express, Greece, 40 bls. rags.
E. J. Keller Co., Inc., Ryufuku Maru, ——, 252 bls. rags; 48 bls. bagging.

OLD ROPE

Brown Bros. & Co., Marengo, Newcastle, 113 coils.
Brown Bros. & Co., Boston City, Bristol, 137 coils.
Brown Bros. & Co., Cristobal Colon, Coruna, 30 bls.
Brown Bros. & Co., Minnewaska, London, 87 coils.
Brown Bros. & Co., Westerdyk, Rotterdam, 110 coils, 4 bls.
W. Steck & Co., Westerdyk, Rotterdam, 47 coils.
E. J. Keller Co., Inc., Ryufuku Maru, ——, 45 bls.

CASEIN

T. M. Duche & Sons, Nordbo, B. Ayres, 251 bags, 15,060 ks.
Chemical National Bank, Nordbo, B. Ayres, 834 bags, 50,040 ks.

WOOD PULP

M. Gottesman & Co., Inc., Ida Sebenico, 1,600 bls. wood pulp.
M. Gottesman & Co., Inc., Wytheville, Rotterdam, 850 bls. wood pulp, 85 tons.
J. Andersen & Co., Minnequa, Sarpsborg, 1,440 bls. sulphite, 240 tons.

(Continued on page 82)

The

ST. REGIS PAPER COMPANY

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Rhoads Tannate Watershed Belting

CONSIDERABLY BETTER SERVICE

THIS is the report on two Rhoads 2-ply Tannate Watershed Belts that replaced 3-ply oak belts on beaters in a Minnesota paper mill.

The oak belts slipped at times enough to "burn," and wore out rapidly.

The Tannate Watershed Belts even when the beaters are loaded with heavy stock carry the loads steadily without appreciable slip.

The much longer life of Tannate Belts and their ability to transmit decidedly more horse-power without slipping make them "considerably better" for paper mill service than most other makes of belting.

They are always sold under the Rhoads service guarantee. This leaves you to be the judge of whether your purchase is profitable. On this basis may we send you a Rhoads Tannate Watershed Belt for one of your hard drives?—Or would you like one of our men to call?

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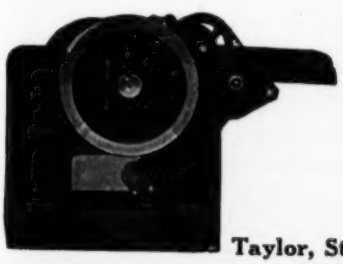

GIANT

Rag Cutters

Taylor, Stiles & Company
Riegelsville, N. J.

Ham Feltz says:

"Let these wise acres prate all they want. There's but one test for a felt, and that's on the machine. And it's also been my observin' that when you want felts that help to get out the tonnage, that leak like a fish net, and that are tough as life itself, get a Hamilton Felt. I know. The fellows who make them have been doing just that for nigh on to 70 years. And that 'know how' counts big with me."

Hamilton Felts

Imports of Paper and Paper Stock

(*Continued from page 80*)

bls. wood pulp.
E. M. Sergeant & Co., Gripsholm, Gothenburg, 613 bls. dry soda pulp.
Castle & Overton, Inc., Gripsholm, Gothenburg, 109 bls. sulphite pulp.
Atterbury Bros., Inc., Stavangerfjord, Oslo, 750 bls. wood pulp.
International Accept. Bank, Stavangerfjord, Oslo 800 bls. kraft pulp.
E. M. Sergeant & Co., Stavangerfjord, Oslo, 325 bls. wood pulp.
Castle & Overton, Inc., Deutschland, Hamburg, 302 bls. wood pulp, 45 tons.
Bulkley Dunton & Co., Hedderheim, ——, 1,675 bls. wood pulp, 320 tons.
Chemical National Bank, Hedderheim, Iggesund, 625 bls. sulphate pulp, 125 tons.
M. Gottesman & Co., Inc., Hedderheim, Iggesund, 750 bls. sulphate pulp, 150 tons.

WOOD PULP BOARDS

International F'd'g Co., Deutschland, Hamburg, 16 bls.

WOOD FLOUR

The Burnet Co., Wytheville, Rotterdam, 1,000 bags, 50,000 ks.
B. L. Soberski, Stavangerfjord, Frederickstad, 750 bags.
B. L. Soverski, Westerdyk, Rotterdam, 900 bags.
State Chemical Co., Westerdyk, Rotterdam, 1,080 bags.

BOSTON IMPORTS

WEEK ENDING DECEMBER 1, 1928

J. Andersen & Co., Ida, Trieste, 260 bls. wood pulp.
M. Gottesman & Co., Inc., Ida, Sebenico, 3,200 bls. wood pulp.
J. Andersen & Co., Minnequa, Gothenburg, 2,750 bls. sulphite, 558 tons.
The Borregaard Co., Inc., Minnequa, Gothenburg, 2,125 bls. wood pulp, 431 tons.
Johanson Wales & Sparre, Inc., Minnequa, Gothenburg, 125 bls. sulphate, 25 tons.
J. Andersen & Co., Minnequa, Sarpsborg, 6,870 bls. sulphite, 1,145 tons.
The Borregaard Co., Inc., Minnequa, Sarpsborg, 1,830 bls. sulphite, 305 tons.
National Shawmut Bank, Tomalva, Antwerp, 7 bls. rags.
A. Bloch & Co., Tomalva, Antwerp, 50 bls. rags.
P. H. Graham & Sons Co., Tomalva, Antwerp, 45 bls. rags.
Spaulding Fibre Co., Tomalva, Antwerp, 540 bls. flax waste.
Baring Bros. & Co., Tomalva, Antwerp, 10 bls. rags.
American Felt Co., Tomalva, Antwerp, 37 bls. flax waste.
F. J. Fawcett, Tomalva, Antwerp, 72 bls. flax waste.
American Paper & Tube Co., Tomalva, Antwerp, 309 rolls paper.
E. Butterworth & Co., Inc., Tomalva, Antwerp, 198 bls. rags.
Robert Blank, Tomalva, Antwerp, 320 bls. rags.
Chemical National Bank, Tomalva, Antwerp, 70 bls. rags.
Parsons & Whittemore, Inc., Mississippi, London, 87 bls. tissue paper.
J. A. Delisle, Mississippi, London, 44 bls. paper stock.
Brown Bros. & Co., Mississippi, London, 241 bls. old rope.
G. M. Graves Co., Mississippi, London, 68 bls. rags.
Baring Bros. & Co., Mississippi, London, 158 bls. paper stock.
Crocker Burbank Co., Mississippi, London, 867 bls. waste paper.
Bulkley Dunton & Co., Hedderheim, ——, 2,100 bls. wood pulp, 360 tons.
Price & Pierce, Ltd., Hedderheim, Orviken, 300 bls. wood pulp, 50 tons.
American Exchange Irving Trust Co., Hedderheim, Hernosand, 8,400 bls. sulphate pulp, 1,400 tons.
Bulkley Dunton & Co., Ovre, ——, 4,000 bls. wood pulp.
Castle & Overton, Inc., Amasis, Germany, 708 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 1, 1928

E. J. Keller Co., Inc., Syros, ——, 600 bls. bagging

PORTLAND IMPORTS

WEEK ENDING DECEMBER 1, 1928

The Borregaard Co., Inc., Minnequa, Sarpsborg, 174 bls. sulphate pulp, 29 tons.
The Borregaard Co., Inc., Minnequa, Gothenburg, 875 bls. wood pulp, 177 tons.
Waterfalls Papermills, Minnequa, Gothenburg, 3,125 bls. wood pulp.
The Borregaard Co., Inc., Minnequa, Bamble, 1,800 bls. sulphate pulp, 300 tons.
The Borregaard Co., Inc., Minnequa, Hurum, 1,620 bls. sulphate pulp, 270 tons.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 1, 1928

C. B. Richard & Co., Boston City, Bristol, 190 bls. rags.
J. A. Steer & Co., Boston City, Bristol, 78 bls. old rope.
Brown Bros. & Co., Boston City, Bristol, 232 bls. rags.
J. Andersen & Co., Minnequa, Gothenburg, 250 bls. sulphite, 50 tons.
The Borregaard Co., Inc., Minnequa, Gothenburg, 125 bls. wood pulp, 25 tons.
J. Andersen & Co., Minnequa, Sarpsborg, 300 bls. sulphite, 50 tons.
V. Galaup, Tomalva, Antwerp, 47 bls. rags.
D. I. Murphy, Tomalva, Antwerp, 127 bls. rags.
Castle & Overton, Inc., Tomalva, Antwerp, 213 bls. rags.
G. W. Millar & Co., Tomalva, Antwerp, 188 bls. rags.
Equitable Trust Co., Tomalva, Antwerp, 57 bls. rags.
True & McClelland, Tomalva, Antwerp, 10 bls. rags.
M. Friedman & Co., Tomalva, Antwerp, 212 bls. rags.
Price & Pierce, Ltd., Hedderheim, Orviken, 7,800 bls. wood pulp, 1,320 tons.
Chemical National Bank, Hedderheim, Iggesund, 1,275 bls. wood pulp, 255 tons.
M. Gottesman & Co., Inc., Hedderheim, Iggesund, 500 bls. wood pulp, 100 tons.
Castle & Overton, Inc., Schodack, Havre, 122 bls. rags.
Castle & Overton, Inc., Westfalen, Germany, 1 bls. jute waste.
Castle & Overton, Inc., Zenada, Germany, 2,905 bls. wood pulp
Castle & Overton, Inc., Ala, Holland, 202 bls. rags.
Bulkley Dunton & Co., Harburg,——, 410 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 1, 1928

The Borregaard Co., Inc., Minnequa, Gothenburg, 250 bls. wood pulp, 50 tons.
Castle & Overton, Inc., Zenada, Germany, 3,721 bls. wood pulp
Castle & Overton, Inc., Innoko, Antwerp, 2 bls. rags.
Bulkley Dunton & Co., Eupatoria, ——, 1,000 bls. wood pulp.
Bulkley Dunton & Co., Titania, ——, 3,150 bls. wood pulp.

Canadian Hydro-Electric New High Output Record

Canadian Hydro-Electric Corporation, Ltd., a subsidiary of International Paper Company, has made a high output record by producing 6,054,837 kilowatt hours of electric energy in a single day. This record production establishes Canadian Hydro-Electric Corporation as one of the largest producers of electric power in the world.

The rapid expansion of Canadian Hydro-Electric in the power field in Canada is well illustrated by the fact that the first of the plants of Gatineau Power Company, a subsidiary, came into operation less than two years ago, and that today the stations of Canadian Hydro-Electric have a capacity of 642,600 hp. installed and in process of installation. Of this power, 439,000 hp.— sixty-eight per cent—is on the Gatineau River in the hydro-electric plants of Gatineau Power Company, 123,600 hp. is in the developments of Gatineau Power Company on the Ottawa River and its other tributaries, and 80,000 hp., is in the Grand Falls, New Brunswick, hydro-electric station of Saint John's River Power Company, another subsidiary of Canadian Hydro-Electric.

The high output of Canadian Hydro-Electric reflects the expanding industrial activity in Canada, of which the consumption of electric energy is important and an accurate index.

Meyer Buys Peshtigo Plant

APPLETON, Wis., December 4, 1928.—E. A. Meyer, general manager of the Menasha Products Company, Menasha, Wis., formerly the Menasha Printing and Carton Company, has announced his resignation, to take effect January 1. Mr. Meyer says h has purchased the Peshtigo Paper Company, Peshtigo, Wis., a company organized during war time and operating for the last several years under receivership. Mr. Meyer says he will reorganize the company and change the name to the E. A. Meyer Paper Company. The plant consists of a sulphite mill and two-machine paper mill.

Kalamazoo Technical and Cost Men Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 3, 1928.—The Cost and Technical Association of the Paper Industry, Kalamazoo Valley division, met Wednesday evening at the Columbia Hotel for dinner and program. The evening was devoted to discussion of the topic "Arriving at the Correct Cost of the Conversion of Old Papers." G. C. Ferguson, of the Waterveleit Paper Company and H. C. Bradford, of the Rex Paper Company, led in this round table program.

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Superheaters :: Preheaters

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For Southern Paper Co., two orders, total 4700 H.P.
For St. Croix Paper Co. ..... 1200 H.P.
For Brown Paper Mill Co. ..... 3430 H.P.
Central Paper Co., Muskegon, Mich., four orders, total ..... 3100 H.P.
Philadelphia Paper Mfg. Co., Phila., three orders, total ..... 2400 H.P.
Jessup & Moore Paper Co., Phila., four orders, total ..... 4750 H.P.
Ontario Paper Co., Ltd.
For Daily Newspaper Co., North Tonawanda, N. Y. ..... 2034 H.P.
Filer Fibre Company, Filer City, Mich. ..... 1500 H.P.
John Lang Paper Co., Philadelphia, Pa..... 416 H.P.
Bayless Manufacturing Corp., Austin, Pa..... 1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total ..... 400 H.P.
Crown Willamette Paper Co., San Francisco, Cal., two orders, total ..... 750 H.P.
Delaware Hard Fibre Co., Wilmington, Del., two orders, total ..... 920 H.P.
Kieckhefer Container Co., Delair, N. J. ..... 1800 H.P.

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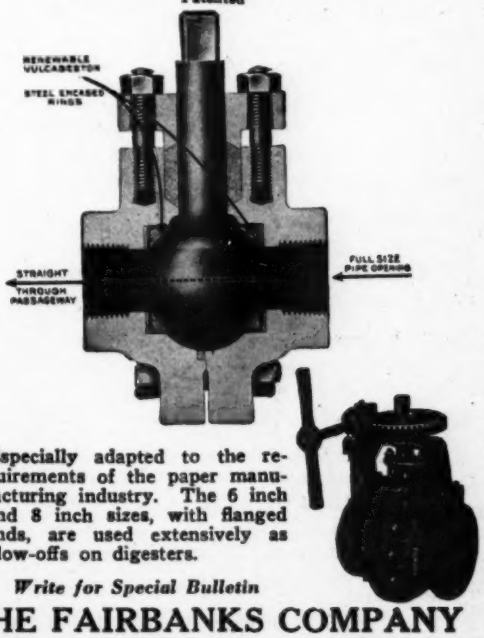

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THE FAIRBANKS COMPANY

BOSTON NEW YORK PITTSBURGH
Factory: Binghamton, N. Y.
Distribution in ALL Principal Cities

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 5, 1928.

The local paper market during the past week has pursued an even tenor, with supplies moving easily into consumption and most of the various grades enjoying an active demand. The price schedules quoted last week are practically unchanged.

The price cut in the eastern board market which was reported verbally last week has since then been confirmed in print. A few manufacturers are taking large orders for chip board, formerly quoted at $42.50, for $30, and filled news board, formerly at $45, for $32.50, for prompt shipment only. This condition is expected to last only a short time, and many mills are rejecting orders under former prices, some even having withdrawn from the market temporarily. Straw and liner board have not been cut, and the price scale for waste paper has been virtually unafected.

Production of news print continues to increase, having reached approximately 80 per cent of total capacity. Contract consignments are moving forward steadily. Prices on 1929 contract have been materially reduced.

The market for fine papers is firm, and contracts are being renewed readily at present prices. The production rate has reached about 90 per cent. The increased holiday demand for tissues is sustained. Prices are stable. Coarse paper continues to enjoy a heavy demand. Wrapping paper is moving in large volume. Prices adhere to previous levels.

Mechanical Pulp

The ground wood market is normally active. Besides a satisfactory movement of tonnage on contract, manufacturers report a somewhat increased demand for this product. Prices are generally firm.

Chemical Pulp

The demand for chemical pulp is fairly active. Of the various grades, bleached sulphite still occupies the strongest position. The better grades of unbleached mitscherlich and other grades of prime strong unbleached sulphite are now running bleached sulphite a close second in demand. Considerable tonnage has been placed lately for 1929 delivery. Producers report that sales made for forward delivery exceeded last year's at this time by about 50 per cent.

Old Rope and Bagging

There is a normally active request for old rope and bagging, both domestic and imported. Prices are steady. Scrap bagging is slightly active, and roofing bagging fairly so. Quotations are unchanged.

Rags

The rag market still shows a routine activity. The call for domestic cotton cuttings is fair, but roofing grades have evoked little interest. The foreign rag market continues quiet, but dealers expect a livelier interest soon. Prices on the various grades, domestic and imported, adhere largely to schedule.

Waste Paper

The paper stock market is showing a sustained strong tendency. Book stock is in excellent request. Prices are firm. Hard white and soft white shavings are moving readily. Those grades of waste paper used in the paper mills are in good request. Old kraft machine compressed bales are going rapidly into consumption. Prices generally adhere to the schedule which were quoted last week.

Twine

Manufacturers report a fair volume of business in the twine market. The call for wrapping paper is heavy. The different grades of twine are in moderate request. Further substantial orders are anticipated for the current year.

NEWS PRINT ENTENTE

(*Continued from page 39*)

bidden to get together for establishing higher prices must have been lost in amazement when they learned that the Governments of both Quebec and Ontario had urged the paper mill owners to get together and put the price of news print as high as they can get it.

"That the country in general would have suffered from a continuance of unrestricted competition is admitted. That labor had already begun to suffer was declared by Premier Ferguson. But the principle of government interference to prevent unrestricted competition being admitted, where are we to stop? What is sauce for the goose is sauce for the gander, and it is no surprise to find the view put forth that 'the official attitude on news print might reasonably be extended to other businesses that are on the verge of starvation.'"

Bathurst Company Goes Ahead

In a circular letter to shareholders of Bathurst Power and Paper Company, Nesbitt, Thomson & Co., investment bankers, who floated the recapitalized company some months ago, say:

"Your company's mills at Bathurst, N. B., are now running at full capacity—six days a week. This includes the news print machine of 65 tons daily capacity.

"All differences between the company and the town of Bathurst in connection with taxes having been satisfactorily settled, the company is now erecting its second news print machine of 65 tons daily capacity."

It is understood that this second machine will be ready to operate in March next.

International Issues Stock to Employees

The International Paper Company is again making a preferred stock offering to its employees. Employees of virtually all the subsidiary companies participate in the offering. The stock is offered at $94 a share and payment can be made in instalments. The maximum the employees are entitled to purchase is equal to one share for every $10 a week in salary. The company is giving bonuses on each share annually for five years to encourage those now employed by the company to stay in its employ and become part owners of the undertaking.

Specialty Paper Mill Plans Addition

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 3, 1928.—The Specialty Paper Company is proceeding with its plans to construct an addition to its plant, located at the corner of Chapel road and Brocton avenue, Edgemont. The plans include the erection of a superstructure at once. It will cost approximately $42,000, with equipment. Frank Hill Smith, of the Hill-Smith Company, of this city, has the contract for the structure.

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This is a grade developed for mills of limited beating capacity. While not giving results equal to Super Alpha, it produces wonderful paper on short beating.

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This is a grade midway between Super and Easy-Beating.

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CONTENTS

Entire contents classified under separate headings for the United States and Canada, alphabetically and geographically arranged by states.

City Addresses of Mills and Mill supply Houses
Classified List of Paper Mill Products
Classified List of Pulp Mill Products
Coated Paper Manufacturers
Envelope Manufacturers
Glazed and Coated Paper Manufacturers
Idle Mills
Mill Officials
Pad Manufacturers
Paper Merchants
Paper Stock and Rag Dealers
Paper Bag Manufacturers
Paper Box Manufacturers
Paper Wood Pulp and Chemical Fiber Mills of the United States, Canada, Cuba, Mexico and South America
Paper Specialties Manufacturers
Papeterie Manufactures
Etc., etc., etc.

LOCKWOOD TRADE JOURNAL CO. 10 East 39th Street - New York, N.Y., U.S.A.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 5, 1928.

BLANC FIXE.—Trading in the blanc fixe market during the past week has been actively normal. Contract shipments are moving in good volume. Prices are unchanged. The pulp sells at from $42.50 to $45 per ton, in bulk; the powder at from 3½ cents to 3⅝ cents per pound, in barrels, at works.

BLEACHING POWDER.—This commodity is enjoying an increased demand. Manufacturers report no price changes. The current price on bleaching powder is from $2.00 to $2.33 per 100 pounds, in large drums, at works.

CASEIN.—Producers report a fairly active call for casein, with a slight reduction on all grades. Domestic casein is now quoted at from 15 cents to 16 cents per pound, and the imported at from 15½ cents to 16 per cent per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Caustic soda continues in excellent request. Manufacturers report a heavy bulk of contract orders for 1929. Reduced stocks may affect spot prices, but quotations so far are unchanged: solid caustic soda sells at from $2.90 to $2.95, and the flake and the ground at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—There is a sustained heavy movement in china clay at present. Prices adhere to former schedules. Domestic paper making clay is quoted at from $8 to $9 per ton, the pulverized at from $10 to $12 per ton, at mine. The imported sells at from $15 to $25 per ton, ship side.

CHLORINE.—Following a reduction of half a cent per pound on all contracts for 1929, producers report almost all such contracts closed. The market for chlorine is strong, with stocks considerably reduced. No price cuts are anticipated. Chlorine still sells at 3 cents per pound, in tanks, or multi-unit cars, at works, on contract, and at 4½ cents per pound, in cylinders, car lots, at works.

ROSIN.—Trading in the rosin market continues brisk. At the naval stores those grades of rosin required in the paper mills are now selling at from $9.75 to $9.80 per 280 pounds, ex dock, in barrels. Wood rosin is quoted at from $7.15 to $7.95 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—The salt cake market has become increasingly firm, with a rising tendency, due to the fact that the production of nitér cake for 1929 has practically gone out. Producers of salt cake are nearly sold out for the coming year. Prices are firm. Salt cake is selling at from $16 to $18 per ton, and chrome salt cake at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—Producers report a strong market for soda ash. Contracts for 1929 delivery have been taken in very heavy volume. The price schedule is unchanged: soda ash is selling at $1.32½ in bags, and $1.55 in barrels, all in car lots, at works, per 100 pounds, according to grade.

STARCH.—A steady market prevails in starch. Shipments are moving easily into consumption. Quotations are unchanged. Special paper making starch still sells at $4.07 per 100 pounds, and at $4.24 per 100 pounds in barrels.

SULPHATE OF ALUMINA.—This product continues to show a strong undertone. Prices are steady and unchanged: commercial grades are quoted at from $1.40 to $1.55; the iron free at from $1.90 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Buying in the sulphur market is persistent. Shipments on contract are moving steadily. Prices are stable. Sulphur is quoted at $18 per ton in lots of 1,000 tons or over, on yearly contract, and at $20 for any smaller quantity over that period. On spot and nearby carloads the quotation is $21.

TALC.—Transactions in the talc market proceed in a routine manner. Prices are unchanged: domestic talc sells at from $16 to $18 per ton, at eastern mines, and imported talc at from $18 to $20 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.50	@ 4.75
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	13.00	@16.00

(Delivered New York)

Boards—per ton—		
News	32.50	@45.00
Straw	52.50	@55.00
Chip	30.00	@42.50
Binders' Boards	65.00	@67.50
Sgl. Mla. Ll. Chip	45.00	@52.50
Wood Pulp	80.00	@85.00
Container	55.00	@60.00
85 Test Jute Liner	55.00	@57.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.65	@ 4.40
Easy Bleaching	2.75	@ 2.90
No. 1 strong unbleached	2.50	@ 2.75
Mitscherlich unbleached	2.55	@ 3.25
No. 2 strong unbleached	2.40	@ 2.60
No. 1 Kraft	2.50	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.75	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.50	@ 3.30
Soda Bleached	3.15	@ 3.30
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.15	@ 2.30
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 1.90
Lindsay Garments	1.80	@ 1.85
Dark Cottons	1.60	@ 1.65
Old Shopperies	1.50	@ 1.55
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, heavy	1.60	@ 1.65
Bright Bagging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.35	@ 3.65
Domestic	3.25	@ 4.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.55	@ 2.65
White envelope cuttings	3.25	@ 3.50
Flat Stock—		
Stitchless	1.70	@ 1.80
Overissue Mag.	1.70	@ 1.80
Solid Flat Book	1.65	@ 1.75
Crumpled No. 1	1.15	@ 1.25
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.75	@ 1.80
Manilas—		
New B. B. Chips	.65	@ .75
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.80	@ .85
Container	.65	@ .70
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.85	@ 1.9[illegible]
News—		
No. 1 White News	1.75	@ 1.80
Strictly Overissue	.85	@ .95
Strictly Folded	.70	@ .75
No. 1 Mixed Paper	.55	@ .60
Common Paper	.35	@ .40

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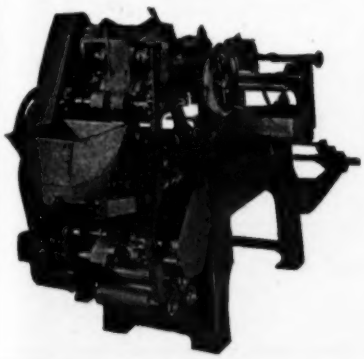

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Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¾
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.95
White Env. Cuttings	2.90	@	3.00
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.25	@	1.35
Blanks	1.70	@	1.80
Krafts	1.90	@	2.05
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (oversissue)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Labe	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.08½	@	.09
Manil Sul., No. 1	.04½	@	.06
Manil No. 2	.04	@	.04½
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.07	@	.07½
Common Bogus	.03	@	.03½
Straw Board	52.50	@	75.00
News Board	45.00	@	—
Chip Board	42.50	@	—
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	80.00		
No. 2, per ton	75.00		
Carload lots	60.00	@	70.00
Tarred Felts—			
Regular	53.00	@	55.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.93	@	2.08

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Sil. ia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Washable, No. 2	.03	@	.03½
Fancy			
Cottons—According to grades—			
Blue Overall	.07½	@	.08
New Blue	—	@	.04
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.65	@	1.80
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.15	@	1.25
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.50	@	2.60
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.80	@	1.90
Writing Paper	1.70	@	1.75
No. 1 Books, heavy	1.50	@	1.60
No. 2 Books, light	1.20	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common Paper	.60	@	.65
No. 1 Mixed Paper	.65	@	.70
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.90	@	.95
Old Newspaper	.70	@	—

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2—			
Repacked	.02¾	@	.02¾
No. 2	1.40	@	1.30
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.25	@	—
No. 5A	.85	@	.90
B	.80	@	.90
C	.70	@	.80
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.70	@	1.85

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04	@	.04¾
Common Bogus	.02	@	.02¾
Delivered New England points			
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board		@	32.50
Chip Board			30.00
Single Manila Lined Chip			45.00
Single White, Patent Coated Newsboard			
Bender	70.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.55	@	1.60
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.20	@	1.25
White Blank News	1.70	@	1.75
Old Kraft	1.90	@	2.00
Print Manila	.80	@	.90
No. 1 Mixed Paper	.55	@	.60
Overissue News	.85	@	.90
Old Newspapers	.75	@	.80
Box Board, Chip	.65	@	—

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.50
Manila Rope—			
Foreign	4.00	@	—
Domestic	4.00	@	—
Mixed Strings	.90	@	1.00
Jute Wool Strings	—	@	1.00
Scrap Burlaps	1.50	@	1.60
Scrap Sisal	1.50	@	1.75
Scrap Sisal for anreading	1.75	@	2.00
Wool Tares, heavy	—	@	1.50
New Burlap Cutting	1.90	@	2.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09	@	.10
Silesias, No. 1	.06	@	.06½
New Unbleached	.09½	@	.10
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06	@	.06½
New Black, soft	.04	@	.04½
Khaki Cuttings	.04	@	.04½
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.03
Miscellaneous	.03½	@	.04
Twos and Blues	—	@	2.50
Thirds and Blues—			
Repacked	2.00	@	2.15
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.55	@	1.60
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.25	@	5.50
New Checks & Blues	4.25	@	4.50
Old Fustians	1.90	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.70	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	.05½	@	—

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1929 EDITION

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Paper Mill Stocks and Bonds

Quoted by Taylor & White, 45 Wall street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Power & Paper 5s, 1943	90	91
Abitibi Power & Paper 6s, serially to 1934	100	102
American Writing Paper 6s, 1947	81	87
Bastrop Pulp & Paper 6½s, 1940	103	105½
Bedford Pulp & Paper 6½s, 1942	97	100
Belgo-Canadian Paper 6s, 1943	100	103
British-Columbia Pulp & Paper 6s, 1950	89	92
Brown Paper Mills Serial 6s, 1941	97	100
Brown Company 5½s, 1946	98	101
Bryant Paper 6s, 1942	98	101½
Canadian Paper Board 7s, 19337	97	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	95	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago, Debenture 6s, 1936	95	98
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	78	...
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	95	...
Champion Paper Corp. 6s, 1945	95	98
Container Corp. of America Debenture 6s, 1936, ex-warrants	101	104
Continental Paper Products 6½s, 1943	90	99
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	101	102
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	80	...
Donnaconna Paper 5½s, 1948	93	...
Eastern Manufacturing Co. 7s, 1938	97	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Irange Paper 7s, 1942	101	...
Fort William Paper 6s, 1946	100	104
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	100	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	94	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
Itasca Paper & Prairie River Power Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Power Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	83	90
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Paper 6s, 1941	105	108
Marathon Paper Mills Serial 5½s, 1942	99	101
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	97	101
Minnesota Ontario Paper Serial 6s, 1945	97½	100
Murray Bay Paper Serial 6½s, 1947	102	105
Munissing Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1928-42	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswego Falls Corp. 6s, 1941	99	102
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 5½s, 1947	98	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Queen City Paper 7s, 1933	98	...
River Raisin Paper 6s, 1936	98	100
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Maurice Valley Corp. 6s, 1945	101	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s,, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	102
Smith (Howard) Paper Mills 7s, 1941	104	106
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1934	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	102
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	102	...
Waterway Paper Products 6s, 1931	100	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parson Pulp & Lumber 8s, 1938	20	25
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P. Pfd.	65	75
Brompton Pulp & Paper, 8% Pfd.	100	...
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Pfd.	92	97
Eastern Mfg. Co. 1st Pfd.	55	...
Great Northern Paper, Com.	75	78
Hammermill Paper, new 6% Pfd.	100	...
Hinde & Dauch, Com.	125	None Off.
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	160	None Off.
Marathon Paper Mills, Com.	150	...
Mengel Co., Pfd.	102	104
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	195	...
Oxford Paper Co., Pfd.	108	111
Penobscot Chemical Fibre, Com.	80	...
Richardson Co., Com.	170	...
Sabin Robbins Paper Co., 8% Pfd.	105	110
St. Croix Paper	155	...
St. Regis Paper Co., 7% Cum. Pfd.	105	108
Westfield River Paper Co., 1st Pfd.	Wanted	None Off
West Virginia Pulp and Paper Company	55	57
West Virginia Pulp and Paper, Pfd.	100	103
Whittaker Paper, 7% Cum. Pfd.	105	None Off

Printers to Discuss Paper

At the annual meeting of the Printing Industries Division of the A.S.M.E., which will be held in the Engineering Societies Building in New York on Friday, December 7, 1928, a symposium will be conducted to consider the conditions that affect the use of paper in printing plants.

Members of TAPPI have been invited to attend.

Following is the program to be presented:

9:30 a.m. "Progress Report of Printing Industries Division". Presented by Edward Pierce Hulse, associate editor, Mechanical Engineering, New York, N. Y. Member A.S.M.E., and chairman, Printing Industries Division.

9:40 a.m. "Paper and the Influence of Pressroom Conditions Upon It." By Otto W. Fuhrmann, chairman, Educational Commission, International Association of Printing House Craftsmen, New York, N. Y. Analyzes paper problems of the printer caused by atmospheric conditions and suggests how they may be solved.

9:50 a.m. "Ink, and Atmospheric Conditions in the Pressroom." By Julius Frank, Ink Consultant, Sigmund Ullman Company, Instructor in Theory and Related Subjects, School for Printing Pressmen, New York, N. Y. Outlines difficulties in presswork caused by atmospheric conditions. Discusses in detail manufacturing details of various inks.

10:00 a.m. "Heat-Drying Equipment for Printing Presses." By Charles Henry Cochrane, proprietor, Utility Heater Company, New York, N. Y. Pressroom conditions essential to good quality printing at modern high speed, and devices for securing them.

10:10 a.m. "Grammer Process for Prevention of Offset." By Harry C. Cole, president, Acme Gear Company, and Joseph S. Pecker Machine and Tool Designing Company, Philadelphia, Pa., Associate-Member A.S.M.E. The Grammer method embodies an automatic machine, applicable to any type of cylinder, rotary, or perfecting printing press, by which paraffin wax heated to a liquid is sprayed on the printed sheet or printed web of paper after printing and before piling the separate sheets or re-rolling the web.

10:20 a.m. "Air Conditioning in the Printing and Lithographing Industry." By Willis H. Carrier, president, Carrier Engineering Corporation, Newark, N. J., Mem. A.S.M.E., and Robert T. Williams, mechanical engineer of the same company, New York, N. Y. Factors involved in reproducing natural atmospheric conditions in portions of the plant where humidity, temperature, cleanliness, and air circulation affect materials or process.

10:30 a.m. "Static Electricity." By William C. Glass, vice president, United Printing Machinery-Kidder Press Company, New York, N. Y., Mem. A.S.M.E. and past-chairman, Printing Industries Division. Discusses in detail the Chapman process, a means of eliminating static electricity. Work of the neutralizer in paper, textile, and kindred mills. Special conditions requiring static neutralizing.

C. E. George Joins Taylor Instrument Staff

C. E. George, for many years Western manager of the American Schaeffer & Budenberg Corporation, has recently joined the sales staff of the Taylor Instrument Companies, of Rochester, N. Y. He will be associated with the Chicago office of the company with headquarters at 58 East Washington street.

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